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THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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LOOKING AHEAD
...with the Editor

NEXT week a story on the oil possibilities of the "West Texas of Russia," a vast region lying between the Volga River and the Ural Mountains, which is regarded by many as likely to prove one of the richest oil territories in the world. New fields in this territory are supplying an increasingly larger portion of Soviet oil production, and are expected to continue to increase in importance.

The Ural-Volga region is similar in many respects to the Permian Basin of West Texas and New Mexico in the United States. The Permian Basin drew its name from this Russia area, the Permian formation being named after the town of Perm.

This article has been written by a man who has traveled in Russia, and who has had access to Soviet information. It will be illustrated with photographs obtained from Sovetfoto and American oil men who traveled in the region. A two-color map showing the location of fields, pipe lines and principal points will be included.

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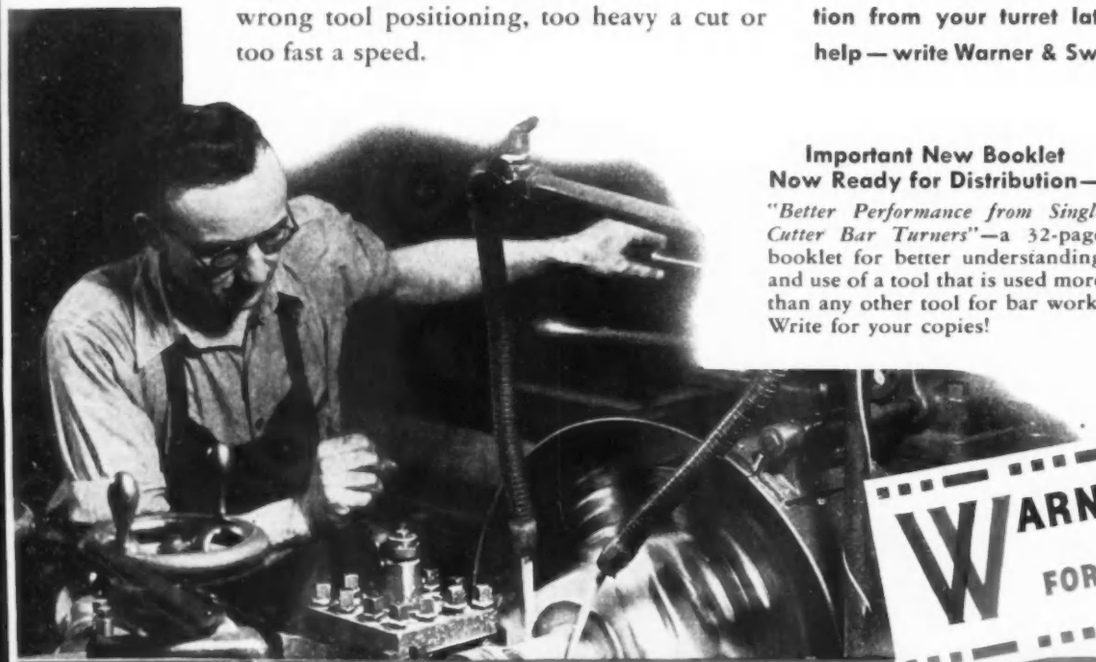

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The Changing Panorama

PAW Acts to Make More Oil Available

TWO important pieces of news broke in Washington during the past week which show how increased military demand for oil is affecting production. Additional steps were taken by PAW to move to market more West Texas crude which in the past has had limited outlet, and heavy increases in production in the Caribbean area, a considerable part of which will move to the United States for refining, were authorized. (See elsewhere in this issue for details).

The public is just beginning to be "let in" on the heretofore military secret as to how much gasoline and other petroleum products the armed services require. Why there has been so much "hush-hush" on these vital figures, we have never been able to determine, but when Secretary Ickes, in a radio speech last Wednesday evening, told how much gasoline the armed services now need, he did so only after making the plea to the War Department that the publication of such figures was in the public interest. Not yet released are the requirements of gasoline for the first quarter of 1944, which will be much higher than any figure quoted in the past.

It has been the belief of THE OIL WEEKLY for a long time that if the enemy only knew how much aviation gasoline was being planned by the Allies for use in the aerial war against them their morale could not possibly be benefitted by the news.

More and more oil is being required, and while steps are now being taken to bring additional oil into play from the Near East, the Western Hemisphere is still the big source of supply, and unquestionably will continue to be for the duration.

The Voice Is Jacob's

FACILITY with which the labor advisors of OPA have fallen into the cant of the baiters of the oil industry suggests readily the Biblical adage of the hairy hands and the unscrupulous voice. Distortions of facts about the ramifications of the workings and finances of a so complex industry as is oil could not conceivably come so readily to men whose daily interest is most concerned with the check-off. Their "little" error in the mathematics of the "steal" they see as going exclusively to the large companies is only the most apparent error in their diatribe which was flavored with only enough fact to make it sound plausible to those who do not know or think, or are predisposed to believe them.

The hairy hand, it should be remembered, is none too clean. When it comes to "steals," the labor price index against what oil would be after the proposed advance had been made, is the evidence of the uncleanliness. And how the coffers that labor officials minister have mounted under the pressure of wartime payrolls is their secret. To have labor's leaders appear in the role of advisers on the public welfare is in itself a bit incongruous when it is remembered that in actual practice their interest in welfare extends never beyond the craft and often no further than the officials.

A good thing it is for the public and for the OPA officials who have bowed their backs on this crude-oil-price question, that the means and methods of these special aids of the OPA are repugnant to honest industrialists. For these of the OPA were the prophets of the sit-down and their high priest only a few weeks ago stopped production of coal—second only to oil in this war effort. Obviously the oil indutsry will not resort to those tactics. But a point that should be remembered is that if the industry did wish to really put over a "steal" as the leaders of the OPA understand it, it would only require "sitting down" for a few days, and these new defenders of the public welfare have ably pointed the way.

Canada Encourages Oil By Better Tax Rates

CANADA is encouraging the oil business in many definite ways, and once dormant wells are being rejuvenated and increased drilling and prospecting is taking place.

How Canada is encouraging the search and development of oil is described by E. Greenway, in the August issue of *Rig & Reel*. He has this to say:

"The go-ahead signal was given oil producers by Honorable J. L. Ilsey, Canada's Little Napoleon of wartime finance. Small companies, big companies, and syndicates went into action at once. For out of a clear sky, Mr. Ilsey announced in his recent budget speech that any company or individual investing in the drilling of a new well may have his investment returned to him tax-free out of the well's production.

"Mr. Ilsey did better than that. He announced the amortization of drilling cost allowances, originally scheduled to take effect in 1943, but now in effect and retroactive to 1942. The new amortization rates are 40 percent first year of production; 30 percent on the second year; 20 percent the third; 15 percent, 12 percent and 10 percent thereafter until costs are amortized.

"The finance minister didn't stop here. He stated that rate of depreciation on drilling equipment would be increased from 15 to 25 percent and will also be retroactive to 1942.

"This means that the oil companies will enjoy a large reduction on the 1942 tax levy."

Such definite encouragement will result in more prospecting and drilling for oil in Canada. It can hardly be hoped that the campaign will have appreciable results for a year or more, but watch Canada in the post-war period become a much more important producer of petroleum.

New Powerful Fuel Can Now Be Made

DESCRIBED as the most powerful hydrocarbon known for use in internal-combustion engines, triptane is a product promising to greatly enhance the performance of present-day aircraft engines and to make possible the design of future engines of even greater power and efficiency, when used as a component of aviation gasoline.

The importance of triptane has been greatly increased through a discovery which makes possible immediate commercial production with materials which are adequately available. Heretofore, triptane has been a laboratory curiosity, made by an impractical and highly expensive method, which required consumption of critical materials. Therefore, it could not be supplied to the fighting forces.

Dr. Vladimir Haensel, research chemist, and Prof. V. N. Ipatieff, director of chemical research of Universal Oil Products Company, together with Universal's technical staff, have developed a method which makes possible the production of triptane for less than $1 a gallon. The discovery is ex-

pected to give the United Nations the most powerful fuels with which to fly.

The process yields not only the triptane but also two other valuable hydrocarbons, desirable in aviation blends.

The raw materials are condensable gases produced in petroleum refineries as by-products of catalytic and non-catalytic cracking or reforming of petroleum oils. The catalysts are readily available in large quantities. No special equipment or materials used in the process plant are necessary other than regular equipment employed in refineries. Temperatures and pressures employed are within refinery experience.

Prospectors Handier At Locating Wildcats

DURING all the cry about the dwindling rate of finding new oil supplies, it has been generally overlooked that a larger percentage of the wildcats drilled are finding either oil or gas.

Taking figures on results of exploratory drilling used generally by PAW and the industry, Randall Wright of Universal Exploration Company offers this tabulation for study:

Year	Total Wildcats Drilled	Number Successful Wildcats	Percent of Successful Wildcats
1937	2224	222	10.0
1938	2638	294	11.1
1939	2589	224	8.7
1940	3038	302	9.9
1941	3264	503	15.4
1942	3166	523	16.5
1943*	1777	271	15.3

* First seven months of 1943

The higher percentage of successful wildcats in recent years suggests that geological and geophysical work has not deteriorated, but instead that geologists and geophysicists are getting handier at calling their shots.

Cars and Trucks in Texas Increase

AS MORE information becomes public, additional reasons further explain why consumption of gasoline in Texas has risen despite rationing. Undoubtedly, as stated in THE OIL WEEKLY of August 16, the increase is accounted for largely by the extremely heavy military demand in the area. It is well known that more soldiers and more flyers are trained in this state than any other.

Latest data that helps clear up the question are figures released recently by the National Automobile Dealers Association on passenger car and truck registrations. These figures show that as of May 1, 1943, passenger cars running in the United States had declined slightly more than 10 percent as compared with the corresponding date in 1942. Truck registrations were about 4 percent less. The figures covered data from 30 scattered states.

However, Texas had both more cars and more trucks in operation. The only increase in passenger cars were in Texas, which was up 5.5 percent or 35,000 vehicles, and in Utah, which was up 2.6 percent or 3000 cars. Other states showed declines ranging upwards to 40.6 percent in Virginia and 33.5 percent in North Dakota. However, later registration periods may have caused some of the reduction in these two states. Nevertheless, other states had decreases ranging up to 17.8 percent fewer cars in operation, although their registration dates were not changed.

On May 1 this year, Texas had 11.5 percent or 18,000 more trucks in operation as compared with the same date a year ago. Several other states showed more trucks in operation, but none approached the gain made in Texas. Delaware had 8.1 percent or 1000 more trucks; Colorado was up 5.7 percent or 1500 trucks; Oregon up 5.0 percent or 2000; Kansas up 1.9 percent or 1900 units; Connecticut up 1.6 percent or 750, and Washington had 1250 more trucks, a gain of 1.5 percent. All other states had fewer trucks in operation.

Eastern Town Does Not Want Oil Field

AT last a community has been found that doesn't want derricks cluttering up its pristine beauty and which would just rather that rough oil men stayed away from it. The town is Morristown, New Jersey, and the good citizens of that community, among them some whose forefathers made a nice nest egg in Standard Oil stock, made it quite plain a short time ago that if the Standard Oil Company of New Jersey drilled a wildcat well in their community they would not like it, and that was that!

Standard Oil Company of New Jersey geologists thought that they had a nice structure in the area. They speculated on how fine it would be if they could bring in an oil field in New Jersey and save all that haul from the Southwest. But when word was noised around it was found such an operation wasn't even mildly welcome. So now the company will continue to get its oil through the long haul and rough oil men will not park their cars where they might be a nuisance and drink up the limited rations of Coca Cola left to the community by the ravages of an oil-fought war.

Some Work Hard; Others Sling Mud

WHILE some men in tin hats and coveralls were doing very well at making gasoline, building ships and tanks, and others in uniform were flying airplanes, driving jeeps and shooting guns well enough to gain a foothold in Italy, the country saw one of its high-ranking federal officials and an executive of one of its states engage in a personal public mud-slinging contest over the justice and necessity of gasoline rationing in Texas. Last week they tossed some wild vindictive remarks at each other which were below the par of brass rail emporiums before such establishments were elevated to the rank of cocktail lounges.

Both generated a lot of gas, but not the sort of gas that could be burned in planes, tanks or cars. However, both succeeded in spending a lot of time that might have been used for constructive deeds and thoughts, and also helped to consume reams of newsprint paper, the consumption of which newspapers are asked to curtail.

In many respects Harold L. Ickes had an unfair advantage over John Lee Smith, lieutenant governor of Texas. While Smith must search his own brain for his words and then hammer them out with his own strength, Ickes has his stable of publicity writers. In fact he has several corps of "word smiths", since he is Secretary of the Interior, Petroleum Administrator, also in charge of a new Petroleum Reserve Corporation and recently added another subsidiary whose purpose is to have a proper name ready in case the Mississippi River should change courses and enter the Gulf of Mexico through Lake Pontchartrain. It is hardly fair when a man has at his call a brace of experts, paid by government, on whom he can call upon to either pile invectives on a lone sub-governor, to write his speeches, to prepare articles for the nation's magazines, and to provide copy for his book, "Fightin' Oil."

However, the contest is not so one sided as first considerations would have it. With all their duties, both Ickes and his publicity spielers should have been too busy on important matters to spend so much time in preparing such a "stew of words." The lieutenant governor, on the other hand, can devote long hours to his rhetoric. Officially he is called upon for state service only when the legislature is in session or the governor leaves the state, and the governor of Texas is not given to great travel.

Public Good Will

—Becoming Increasingly Essential

By WARREN L. BAKER, Editor

Fear of shortage and recognition of oil's importance creating wide public interest in industry's affairs. How well the industry is able to convince the people that it is conducting its business wisely and patriotically for the benefit of all, may be a major factor in determining its future course. Under these circumstances it is imperative that oil remove public mistrust and misunderstanding, by telling its heart-warming story to the people. To do otherwise may be inviting disaster.

GROWING doubt that the industry will be able to produce enough oil a year hence to satisfy rising military consumption, if use continues to increase at rates prevailing in recent months, indicates that the next year or two very likely will be the most important, the most trying and the most critical in the history of United States oil.

During this period the character of numerous matters of far-flung significance will be determined. A completely new pattern for the entire future operating setup of the industry (as well as all businesses) may be established, including the whole relationship between government and petroleum, about which there is considerable skepticism already. The two most important factors that will govern the course of the industry during this time will be:

1. How well the industry is able to meet the unprecedented problems it is being called upon to accomplish, although hampered with too low prices, too few men and too little material.

2. How the public and the legislators react to whatever degree of success the industry achieves in fulfilling the enlarged demands that the rising tempo of military operations will call for, and their reactions to the methods used by the industry in producing these larger quantities of oil.

The industry is aware of the importance of furnishing an adequate supply of petroleum. It knows that at stake is the immediate prosecution of the country's military efforts, the course of the nation's industrial and civilian economy, and also the future trend of the industry's production curve. Furthermore, it realizes that it has a tough job ahead of it, in view of the difficult conditions under which it is asked to produce unprecedented volumes of oil. However, there appears to be a woeful lack of appreciation within the industry of the great dangers that lie ahead, especially if it should fail to completely fulfill in proper fashion the heavy responsibilities imposed upon it. There also is a failure to recognize that under existing circumstances the general public and political circles will play a significant part in determining what the future pattern of the industry will be. Oil needs an understanding public right now, but it will need one more than ever in the future.

In addition to realizing the seriousness of the situation, oil men should recognize the far-flung significance and the vast ramifications of the situation that appears to be gathering on the horizon; especially should they become aware of the important possible ultimate dangers to its operating setup and the interest of the public in petroleum affairs, and that these conditions demand better public relations.

There are two developments that could cause oil to quickly lose its free enterprise standing and be placed under complete and permanent governmenal control. These are either wasteful practices or a shortage of oil. If ever the federal government imposes control over the industry, it will be in the name of conservation, which could be sired by either wasteful practices or a shortage of oil, and it must do this while avoiding wasteful practices if at all possible. As has been pointed out previously[1], the industry's technical men will be the most vital factor in determining whether the industry successfully meets the responsibilities confronting it. Upon them falls the task of finding, developing and producing greater volumes of oil and with the smallest amount of steel.

By actually preventing waste and by actually avoiding a shortage is the only way in which to make such control unnecessary—but this alone is not likely to be sufficient to insure against federal control, unfavorable taxes and other undesirable regulations. It also is necessary for the industry to persuade both the government and the people that it is managing its own affairs so competently, so wisely and so patriotically as to make unnecessary any interference by the government and the people.

Public Interest Growing

In this country, petroleum has become so essential, not only during wartimes but also to peacetime industrial and social life, that the loss of the motivating power and lubricating qualities provided by oil would constitute such a serious disaster as to cause collapse of America's industrial and civilian standards. As a result of this widespread and vital utilization, every man, every woman and every child in the United States had both a direct individual and community interest in oil

[1] Baker, Warren L., "Heavy Responsibilites Are Thrust Upon the Industry's Technical Men," THE OIL WEEKLY, August 16, 1943, page 16.

during times of peace. Now that the nation is at war, and there is fear that the United States may not be able to continue indefinitely to produce such large quantities as in the past, their stake and their interest in the welfare of oil is infinitely greater. Consequently, the affairs of the petroleum industry have outgrown the simple business of producing, manufacturing and selling, and they are now of universal military, economic and political importance.

With oil becoming more widely recognized as one of the most vital of all elements, and with fear growing that the country may be caught short of another commodity as essential as rubber, both the public and the government are giving greater attention to the question of whether the industry can meet the enlarged demands that may be imposed upon it in coming years. This will cause every phase of the industry to be scrutinized closely. The amount of consideration given to the affairs of the industry will increase as crude oil production is increased nearer and nearer to the industry's maximum producing ability, and particularly if discovery rates continue to wane.

Needs Better Public Relations

The industry must recognize this increased interest the people and the government have in petroleum conservation and in petroleum supplies today, as well as the difficulties it may face in producing enough oil to satisfy their wants. Under these circumstances it is almost imperative that the industry tell its truly heart-warming story to the public. This will have such an important bearing in determining the future life of the industry, that it is inviting disaster to trust public reaction to chance. During the trying times ahead, the industry's efforts should not be handicapped by the misinformation, the mistrust and the misunderstanding of its problems and achievements that have characterized its relations with the public and the legislators in the past. The industry will need their helpful assistance and sympathy, certainly their understanding of its problems, and not additional obstacles. This can be obtained only if oil sets about immediately to show that it is not a group of soulless corporations living off one of the country's most vital natural resources, but that it is an industry devoted to the benefit of every citizen, and has joined hands as a single unit to battle for freedom and for an abundant supply of domestic oil.

It is not enough for an industry, especially one of such public importance as oil, to be right; the public must believe that it is right. Just because an industry knows it is doing right or being fair, business cannot take it for granted that every one else understands it thoroughly and believes that it is right and fair. This is especially true in the case of petroleum, for it must be realized that neither the public nor the government can be expected to understand the peculiar, yet fundamental, characteristics and problems of the oil business, unless the industry takes the initiative to explain them. The principle that "an ounce of prevention is worth a pound of cure" applies with full force to public relations. The industry, therefore, should set about to "nip in the bud" its public misunderstandings and grievances. A too common mistake, and one that describes the oil industry's public attitude, is to be satisfied with a situation just because it itself believes conditions are right, without making sure that everyone else (including its workers, customers, the government and the public at large) also feels likewise.

The military axiom, that the best defense is a good offense, is applicable to any other position, and certainly to that of oil at present. There have been too many examples in recent years of too little too late for the industry to have any excuse for not launching a public educational campaign now. Therefore, no opportunity should be lost to present to industry's civilian and industrial consumers and to legislators a true picture of what oil has accomplished.

It is no secret that the general public continues to look with disfavor upon oil companies and the industry as a whole. There is a growing realization of the seriousness of the petroleum situation that may lie ahead, but all the public knows is that the country may run short of oil. The public is almost completely uninformed of the extreme difficulties under which the industry is expected to operate, such as too little steel, too few men and too low prices, and only to a limited extent is it appreciated by the country's legislators. The public reads of the comparatively few companies and individuals that sell out for millions of dollars, but does not know of the multitudinous hazards involved in the oil game and that hundreds or thousands go broke for every one that succeeds. It reads financial statements of the industry, not knowing they represent only the larger concerns and do include thousands of smaller firms and individuals, who operate on smaller profits and frequent losses. Consequently, the industry is viewed as a tremendously wealthy business. From incomplete and highly conflicting stories in newspapers, the public knows that oil currently is pleading for higher prices, but it has not had any opportunity to understand why, and instead the controversial nature of the publicity all too frequently has created misunderstanding and mistrust of the purposes behind these attempts. Neither do Mr. and Mrs. Citizen know that the oil industry has contributed to the war effort. They know that gasoline is essential to mechanized warfare, and that the industry is making synthetic rubber, but they do not know fully of the marvelous part oil is playing in industrial and military efforts. They have not been informed adequately on how oil companies have forgotten business rivalry and joined hands in fighting for victory.

Necessary Facilities At Hand

The disfavor with which the public holds oil creates an exceptionally serious condition that can be counteracted only by an educational program that will inform the public what the oil industry has done, is doing, its hazards and what it needs. The time was never more appropriate than right now for such a public relations program.

All requirements demand better public relations, and all the conditions necessary for a successful public-relations program exist at the moment, or can be procured without difficulty. These requirements and conditions consist of the following:

1. *Need.* Public misunderstanding of oil is widespread and constitutes a serious situation. Due to its wide use, especially during the nation's battle for freedom, the public is highly interested in the affairs of oil. The need for improved relationship with a more highly interested public has been discussed earlier in this article. These two factors, plus current trying times for the industry and prospects for even more critical times ahead, present a real need for such efforts.

2. *Story to Tell.* Few, if any, other industries have contributed as much to civilization as petroleum. It has such a heart-warming story to tell that it should create an immediate sympathetic and understanding response from the public. This story has many aspects, including not only the development of such large-scale production of vital war aids as aviation gasoline and synthetic rubber, but how America's competing oil companies, once the enemy threatened our country, formed solid ranks to help fight the battle for freedom. Furthermore, petroleum's contributions during peacetime are equally heart-warming, especially when compared with developments in other countries. The story of oil accomplishments is a thrilling one of "risk money" under free enterprise competition. There would be

no difficulty in finding subjects that should gain sympathetic interest from the public.

3. *Avenues to Reach Public.* No other industry has available to it as many avenues or means of so easily reaching as large a proportion of the population as does oil through its filling stations. Fact-presenting, appealing posters at filling stations would reach the majority of American citizens consistently at frequent intervals. In addition, the oil industry has available all the other avenues that are servicing other businesses, such as advertisements in nationally circulated magazines, radio programs, and speeches at civic clubs. These avenues for reaching the public are discussed in more detail later in this article.

4. *Technical Skill.* Already the industry has on its payroll men who could prepare and direct a satisfactory public-relations program, if they were permitted to devote their full energies to this effort. Some concerns have established above-normal relationship with their workers, and it is only a step further to public relations.

In addition, the technical skill necessary to direct and prepare a public-relations program is available outside the industry itself. There are many skilled public relations men in this country. They can be hired. Men from outside the industry would have the advantage of seeing things more clearly from the public viewpoint. If such a person or persons were advised by a selected and qualified group from within the industry that would be free to devote all their time to the program, an ideal situation would be created. This group should have experts from different branches of the industry, who also understand and appreciate public reactions.

5. *Funds.* Finances needed for a public-relations program are not available, but should offer no difficulty. If the larger companies would donate funds for this purpose, the cost would not be prohibitive and should constitute a most worthwhile investment.

The possible benefits from a properly conducted public-relations program are great. An understanding public usually is a sympathetic one, and an uninformed public is usually an unsympathetic one. If oil had had proper public relations in the past, it would probably now have the higher crude prices and other assistance the industry apparently believes necessary to stimulate production at this time.

Many Avenues Available

It is quite true that many of the industry's able speakers and prominent leaders have described oil's remarkable achievements, especially in behalf of war efforts. But it is unfortunate and lacking in foresight that the story of what petroleum has contributed has almost invariably been told to an audience made up of oil men. This is not where it will do the most good. The industry is too small a factor in voting strength to be much of a political factor. Oil needs to tell its story to the general public, if it is to be understood and appreciated, so that it can rally sufficient voting power to become a political factor of importance. It should quit carrying newspaper clippings around to show each other, and get out and show the public what it has done, what it needs, what free enterprise has meant, why it needs depletion taxes, and how important it is to everyone and everything.

The case should be carried to the public, to the working man and woman, to every nook and corner of the land. How?

There are many avenues through which the general public, as well as the legislators, may be reached. There are (1) posters, (2) national industrial advertising, (3) radio programs, and (4) personal speaking appearances before civic clubs and other groups. Every one of these avenues should be used.

(1). *Posters.* We have filling stations all over the land into which the majority of this country's people stop at least once every two weeks, despite rationing. No other industry has this close a contact with the public. We have tank cars and tank trucks traveling everywhere. These could be made to deliver messages. We are living in an era in which posters constitute an important propaganda medium. Why not posters in every filling station, on every tank car and every truck wagon that would point out all the things the public is interested in and should be informed upon? There are a thousand and one achievements of which the industry can be proud.

The American Association of Railroads has done a good public-relations job with posters placed in depots and ticket offices, but does not reach nearly as many people as the oil industry could through its filling stations. For example, talk with people outside of the oil business, and almost invariably they give the railroads credit for moving all the petroleum to the East Coast. The railroads did do a magnificent job, but the oil industry contributed most of the tank cars and the railroads were paid for hauling them. The oil industry also has revamped and enlarged its pipe line to the East Coast. Oil should get more credit and goodwill for oil deliveries to the East Coast —but it will have to talk about them first.

Posters displayed at filling stations would have to be big enough and shown with enough prominence that people sitting in their cars would be able to read them. This would not be difficult, if they were placed at proper locations to be within the line of vision of people sitting in cars at gasoline pumps. Posters at filling stations have a very important advantage over other mediums besides that of reaching most of the country's voters, and that is that people are usually free of mind when in filling stations—and therefore would be receptive to something that will occupy their attention while waiting to be serviced.

The cost of posters would be surprisingly low, if all companies were to use the same ones. Payment would have to be made for only one drawing and one set of plates, and the volume would bring actual printing costs down to a very low figure. If desired, these posters could be handled as a straight business merchandising job. That is, an outside company under proper direction, could have them prepared and then sell to the several companies.

To present the full story of oil, the posters could be changed every two or three weeks. This would be impressive to the public, as the story unfolded. If presented in sufficiently interesting style, people would soon look forward to reading the next one. No other industry has as fine an approach to the public as filling stations provide for oil.

(2). *National Industrial Advertising.* Advertisements in magazines with wide national circulation is another good avenue through which the public can be reached and informed about oil. This approach probably would be more expensive than filling station posters.

Many concerns and many industries are using this avenue today. Some of them through individually inserted and paid-for advertisements, and others under cooperative efforts. Today the standard theme of advertising for numerous concerns is what they are contributing to the war and to the postwar conditions. Entire industries have adopted this as their wartime advertising theme. A few oil companies are using it, but not enough of them.

It would seem that now is the best possible time for oil companies to concentrate their advertising appropriations along these lines. With reduced sales to normal channels because of rationing, it appears inadvisable to devote the usual advertising appropriation to promoting the sale of gasoline and lubricating oil. Yet, it is equally unthinkable to permit honored trade

■ CONTINUED ON PAGE 92

OIL IS AMMUNITION

FOR MORE AND BETTER FOOD

War has increased the needs for food by substantial amounts. Not only must the soldier but the defense plant worker be well-fed to do his best. Farmers must produce 25 percent more than in peace time. To do this increased mechanical horsepower must compensate for the loss of manpower. Tractors, harvesters and threshers cannot fly or shoot, but they are front line war machines. In the United States there are more than 2 million tractors at work on farms. Farmers also own 1¼ million trucks and 5 million passenger cars that are essential to their vital work. These units require vast quantities of gasoline, tractor fuel, greases, lubricants, synthetic rubber and other oil products.

Besides the large volumes of oil used in raising food and in transporting it to packing, canning, milling and consuming centers, petroleum also supplies various products necessary in processing and keeping food. Petroleum waxes are essential in packing and shipping of many foods. Food for invading armies, even when dropped from planes into the salty ocean, are found unspoiled when washed ashore due to oil-treated water-proof containers. To keep food fresh, on shipboard and ashore, low pour point oils for refrigeration and ice-making equipment are necessary.

Sugar has the unfortunate characteristic of being both good to eat and good to shoot with. But sugar rations would be much lower in this mammoth war, if petroleum was not helping sugar make alcohol. Hundreds of thousands of tons of sugar are being saved annually in this way.

In the field, much of an army's food is cooked on stoves that burn gasoline.

Oceans of Oil Needed
YOUR JOB IS VITAL FOR VICTORY

Drilling And Production Of Caribbean Nations to Be Increased Sharply

As A military measure, occasioned by increasing military needs and possibilities of a shortage in the United States, the Petroleum Administration for War has approved a stepping up of the oil output in the Caribbean area to the point where a production of 1,134,000 barrels per day is anticipated by January 1, 1945. This will mean that by that time, the Caribbean area (Trinidad, Venezuela and Colombia) must be producing several hundred thousand barrels more oil daily than it was producing on June 1, 1943.

By mid-year 1944, production is expected to exceed 1,000,000 barrels per day.

United States gives go-ahead signal for vast stepping up of drilling and production in Trinidad, Venezuela, and Colombia. Goal is adopted that calls for output to be doubled and for 600 wells to be drilled by end of 1944.

Because the area cannot produce 1,134,000 barrels daily with present wells, the go-ahead signal has been given for the drilling of about 600 wells in Trinidad, Venezuela and Colombia, which means that these countries will soon be drilling wells at more than twice the rate at which they have been drilling. The additional steel for equipment, which will amount to about 110 percent more than has been going to the area, will be made available on the approval of the Army and Navy, PAW representatives said last week. Both the Army and Navy have approved the program. The increased drilling will not be confined to proven fields but considerable of it will be of an exploratory nature.

Million Barrels for Venezuela

In the scheme of production it is expected that Colombia will account for about 70,000 barrels per day, 55,000 barrels of which will move through the Andian pipe line and at least 15,000 barrels per day from the Barco line. Trinidad will account of 60,000 to 65,000 barrels, leaving the remainder of approximately 1,000,000 barrels per day to come from Venezuela. A goal of 370,000 barrels per day from Eastern Venezuela, and 630,000 barrels per day from Western Venezuela, has been set. Some doubts have been expressed over the ability of Eastern Venezuela to produce its share.

How much of this oil will move to the United States has not been indicated. There is a disposition on the part of some to want the idle refining capacity of England to take up some of the slack, but it is possible that this may be done from crude produced in the Near East. Some Caribbean oil will move to Canada. If England does not take any of this Caribbean crude and also provided that the full 1,134,000 barrels are produced, it will mean that something less than 350,000 barrels per day will be moved into the United States for processing in plants which, because of military reasons, cannot be supplied more readily from United States fields. The refinery capacity of the Caribbean area is rated at 650,000 to 670,000 barrels per day, the lower figure being considered the probable operating rate. Of this capacity, in excess of half a million barrels per day is in the Dutch West Indies, 60,000 barrels per day in Trinidad and the remainder in Venezuela.

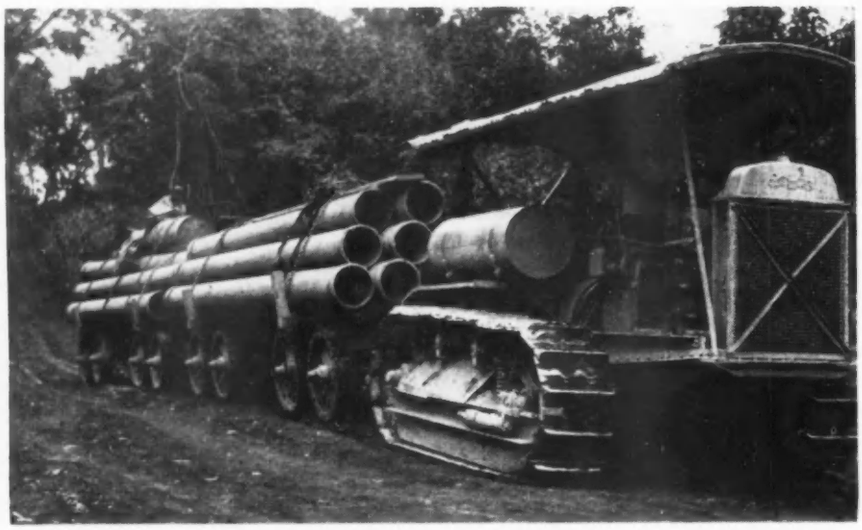
A National Policy

The United States government is assisting and encouraging increased development of oil properties in the Caribbean area at this time largely as a war measure. However, in view of the increasingly serious threat of an early shortage of crude oil producing ability in the United States, the government of this country may be placing increased emphasis on development of foreign sources as a means of conserving domestic resources, for wartime use and maybe for supplementing United States sources in the post-war period, when domestic reserves likely will be low in relation to heavy requirements.

Formation of Petroleum Reserve Corporation, a subsidiary of the Reconstruction Finance Corporation, is seen as a part of a national policy to encourage and assist in the development of oil fields abroad. The formation of this agency was announced July 1. The purposeof the corporation was announced as being to acquire petroleum products and petroleum reserves outside the United States. It is now looked upon as a companion organization to PAW, with the responsibility of serving foreign oil operations very much as PAW serves the domestic industry, except that it also would have money to lend. This indicated that the United States government was due to take an active part in foreign oil development in the immediate future, and the approval of the big program for the Caribbean area bears this out. Meanwhile, measures are being taken to revive the industry in Mexico also.

Late in August, officers of Petroleum Reserve Corporation were appointed. Petroleum Administrator Harold L. Ickes is president. E. DeGolyer, who resigned as assistant deputy petroleum administrator, will serve as consultant to PRC, and is expected to be active head of it. He is familiar with oil operations throughout the Western Hemisphere, and is understood to have been impressed with the serious need for increased exploration and wildcatting in these countries to bolster production ability.

Petroleum Reserve Corporation was capitalized initially at $1,000,000, but it may be taken for granted that the capitalization will be expanded in line with any war requirements. The corporation will investigate and carry out, with Army and Navy approval, whatever foreign projects it finds desirable in assuring sufficient oil supplies for fighting the war around the world. Like PAW, it will be actively inter-



Developing new production in foreign fields involves difficulties of transportation as well as the use of materials now hard to provide, as suggested by this scene in Venezuela.

ested in all branches of the indusry, including exploration, production, refining, transportation and distribution.

The corporation will work with the State Department in dealing with the governments of other countries, and will aid those countries in financing development and operators. Private companies also will be able to carry out foreign development with aid of the corporation.

Expansion of Colombian and Venezuelan properties will no doubt be carried out by private companies, but the United States government recently has entered upon a program of aiding in the revival and expansion of the oil industry in Mexico, as a war measure, having extended credits through Reconstruction Finance Corporation to the government company that operates most of the industry in that country.

Production Already Up

Already there has been a stepping up of production in Colombia and Venezuela. In consequence of submarine warfare after the United States entry into the war, and because of the need for making the most efficient possible use of tankers, petroleum shipments from South America slumped sharply in 1942. Recently there have been indications of material recovery. Of late, the tanker shortage has become much less acute, as shipbuilding has proceeded and sinkings have been reduced there have been more tankers available to move Venezuelan and Colombian oil.

Colombia was particularly hard hit by the war developments. In that country, production dropped from 24,400,000 barrels in 1941 (67,000 barrels daily) to 10,600,000 barrels in 1942 (29,000 barrels per day), a decrease of 57 percent. Colombia formerly exported a large proportion of its production to Canada. In early 1943, Colombian exports had practically ceased, and production shrank to a rate of only about 2,500,000 barrels per year (7000 daily), or approximately the amount needed to supply the domestic requirements, which themselves were below normal because of the rubber shortage and difficulties of keeping motor vehicles in repair. As the year has progressed, however, there has been some recovery in Colombian production. In the first half of 1943 production was over 2,000,000 barrels (11,000 barrels per day on the average), with most of the output produced in the later months. A seven-fold gain over this rate must be made for the country to attain an output of 70,000 barrels per day. However, it will be noted that this is approximately the same level at which Colombia was producing prior to the war.

Venezuelan production dropped sharply, too, in 1942. Whereas it had reached a record level of 223,000,000 barrels in 1941, or 610,000 barrels daily, it fell in 1942 to only 145,000,000 barrels (400,000 daily), a decline of 35 percent, exports having continued heavy for a short while in the early part of 1942 but subsequently having diminished sharply. In the latter half of 1942, the Venezuelan output amounted to only about 55,000,000 barrels, an average of 300,000 barrels daily. In the first half of 1943 there was a gradual increase in exports and production, and for the half-year the output totaled around 72,000,000 barrels, an average of approximately 400,000 barrels daily, it is estimated. Venezuela's domestic consumption of petroleum runs around 11,000,000 barrels annually, or 30,000 daily.

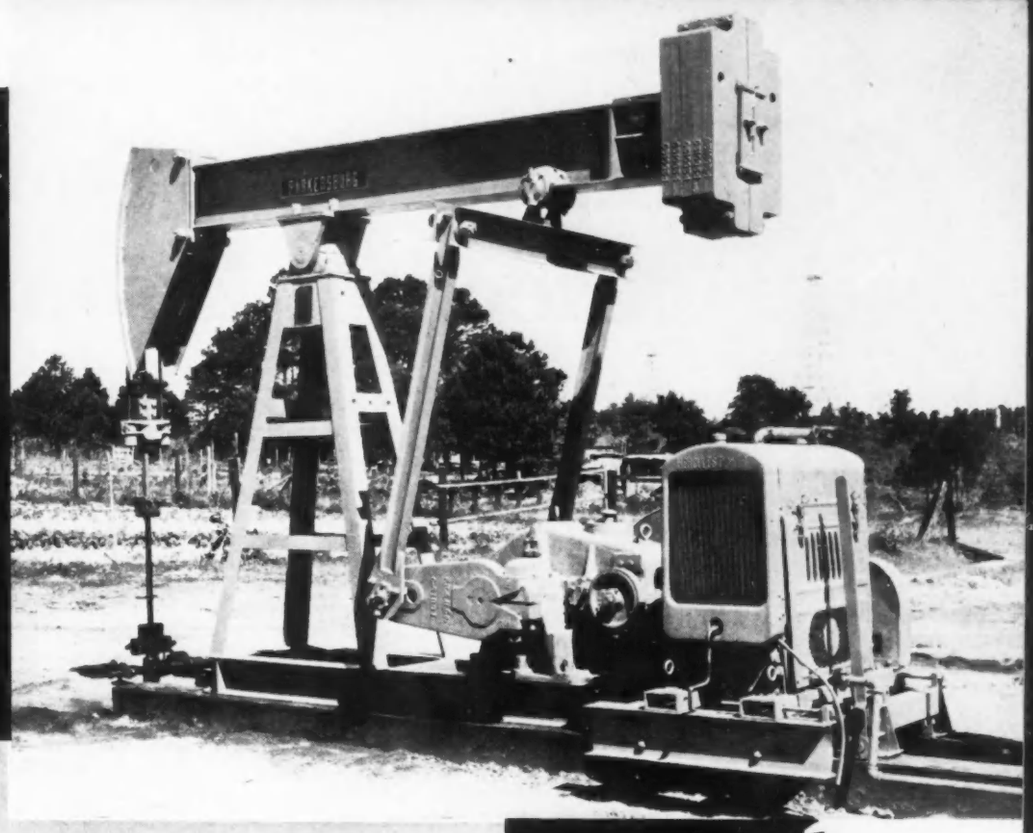
It is important to note that present plans for increased production in Venezuela call for a material increase over even prewar levels. Whereas, the country produced 610,000 barrels daily in 1941, it has been given a goal of nearly 1,000,000 barrels. It, therefore, will appear that most of the drilling and development work that is planned will be in Venezuela. However, offsetting this factor is the probability that present wells in Venezuela might produce more than they did in 1941. If Venezuela were to increase its output to 1,000,000 barrels per day by 1945, this would mean a boost of 400,000 barrels over the record production it attained in 1941. Such a gain would be equivalent to nearly twice as much oil as Illinois is now yielding, or considerably more than either Louisiana or Oklahoma are producing currently.

Mexico Given Credit

Prior to August 1 of this year, a group of Mexican officials, headed by Efrain Buenrostro, managing director of Petroleos Mexicanos, spent several months in the United States, seeking credit for oil development. They succeeded in obtaining substantial credit for machinery and equipment badly needed in several oil districts, particularly the Poza Rica field, it was reported. This was obtained through Reconstruction Finance Corporation, which approved a plan for construction of a modern refinery at Mexico City, for manufacture of high-octane gasoline. The project also includes reconditioning of a pipe line connecting the Poza Rica field with Mexico City. Approved as a war measure, the whole project will involve expenditures of $15,000,000.

From a volume standpoint, Mexico is a much less important producer of petroleum than Venezuela, although producing more than Colombia. Mexico's output is exported in smaller proportion than that of either Venezuela or Columbia, and therefore, production has not slumped as sharply as in those countries. In 1941 Mexico's production totaled 41,200,000 barrels, an average of 113,000 daily; and in 1942 it declined to 35,000,000 barrels, or slightly under 100,000 per day. In the first half of 1943, Mexico's production has further declined, more in reflection of diminishing producing ability than of market conditions, having totaled in the six months about 16,000,000 barrels, an average of less than 90,000 per day. Mexico normally has been using itself about 24,000,000 barrels annually, or 66,000 daily. Difficulties in maintaining production spring from the lack of new fields to compensate for reserves being depleted from the lack of drilling and production equipment, under wartime shortages and financial difficulties of the government-operated industry.

GEAR OR CHAIN DRIVE



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PARKERSBURG DEPENDABLE ENGINEERED PUMPERS

Oil Will Get Enough Steel for Essential Operations

STEEL for "oil field equipment needed in the present emergency is being and will continue to be made available to manufacturers of oil field equipment in the quantities necessary," Frank A. Watts, director of materials, PAW, told THE OIL WEEKLY Thursday. "We have not turned down a single manufacturer's request for steel for oil field equipment when the necessity for it has been shown, excepting in some items on which we had knowledge that such pieces of equipment were to be had from stacked drilling rigs."

In the case of most of the prime essentials for drilling—in fact on all items excepting a very few, the requests for steel have been granted 100 percent. In the case of some others some reductions were made, but in the case of tanks the allocation was increased after manufacturers asked for a review of their requests.

"There has been a definite realization on the part of the armed services recently that drilling of an increased number of wells is necessary and they also realize that this means that more steel for drilling equipment must be made available," Watts said.

Planning ahead and reasonable cooperation on part of operators, suppliers and PAW will provide oil, adequate quantity of equipment for most production operations, says Materials Director Watts.

"We realize, of course, that a manufacturer cannot reach down into his plant and pull out for the oil industry time which has already been contracted to the government for the making of war materials.

"We know that there must be some leeway until the manufacturers can get into increased manufacture of oil field equipment in many instances, but we are anxious that the manufacturers of oil field equipment take on whatever orders are possible for oil equipment to the end that the necessary oil field equipment is made available to the industry." He also pointed out that on August 17 the War Manpower Commission named the manufacturing of oil field equipment as an essential activity.

PAW plans for the fourth quarter of the year call for the drilling of 4622 wells, not including water input or repressuring wells.

Watts discussed the materials supply situation before the meeting of the Petroleum Industry War Council last Tuesday.

"During the two months which slipped by since your last meeting, there has been a growing realization that petroleum and its many products —including aviation gasoline, navy fuel oil, butadiene, toluol, aviation lubricants, motor fuels and lubricants—must be produced and delivered in increasing quantities to all theatres of war for the continued successful conduct of our war program," he said. "This has been closely followed by the knowledge that oil discovery production, transportation, refining, distributing, and related operations cannot be properly carried forward without an adequate supply of materials. With few known exceptions, the joint chiefs of staff and all members of our armed forces whose assignments involve materials—the War Production Board, its agencies and representatives—realize oil products are currently needed to meet our ever-mounting war demands.

Oil Attitude Changing

"The changing attitude and the realization that materials must be provided for petroleum industry use does not necessarily mean that materials are as readily available or as plentiful as they were during and before 1940. In the over-all picture, materials are still scarce and the demands for materials continue to exceed the supplies. For example, the fourth quarter 1943 requirements for carbon steel by all claimant agencies exceeded all supplies by approximately 26 percent. Estimated requirements equaled 19,600,000 tons, while the total supply will be less than 15,500,000 tons.

"It continues to be necessary to plan petroleum operations, and to provide materials for these, as far as practical into the future. If this is done by petroleum industry operators and by the suppliers, distributors, manufacturers, and producers of material required for petroleum industry use and by the Petroleum Administration for War, there is no known reason—in the over-all picture—why an adequate supply of material will not be available for any essential use in every authorized operation. There will, of course, always be a few rough spots.

"There will be instances when operations cannot be planned far enough in advance for material to be supplied through normal channels, and there will be instances when some items of material will be relatively scarce and thereby unobtainable by the time the materials are actually required.

"Producers, manufacturers, distributors, and suppliers of material are beginning to realize and fully appreciate the importance of supplying material to the petroleum industry.

"For a number of years production operators have relied on the oil field supply companies for the multitude of shelf items currently required for production operations, and maintenance and repair use. A few well-stocked supply houses make it unnecessary for thousands of production operators to carry other than emergency stocks in their own warehouses. This practice has conserved both material and labor, because a few well-stocked supply house stores can make it unnecessary for the majority of operators to maintain warehouses of their own. Replies to a recent questionnaire distributed among the approximately 368 oil field supply companies indicated that only about 10

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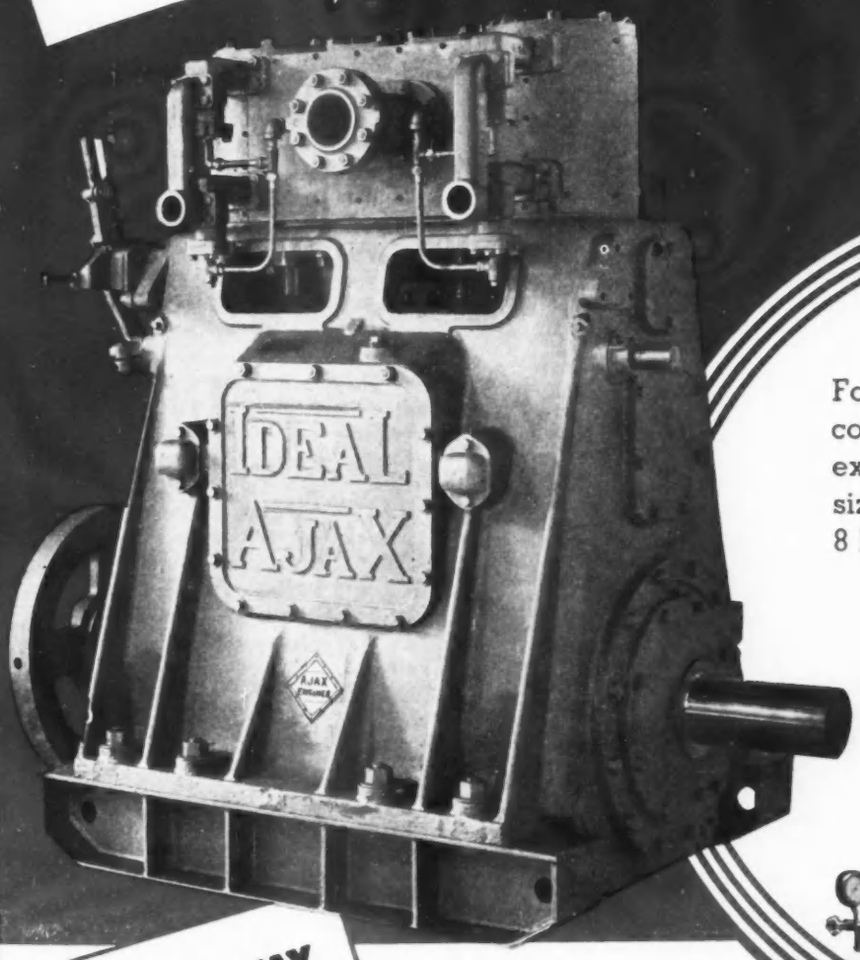

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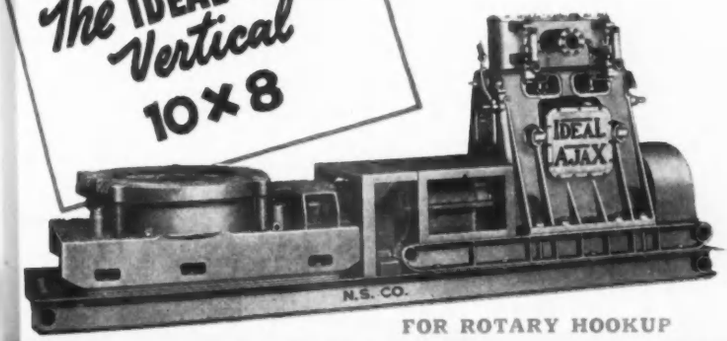
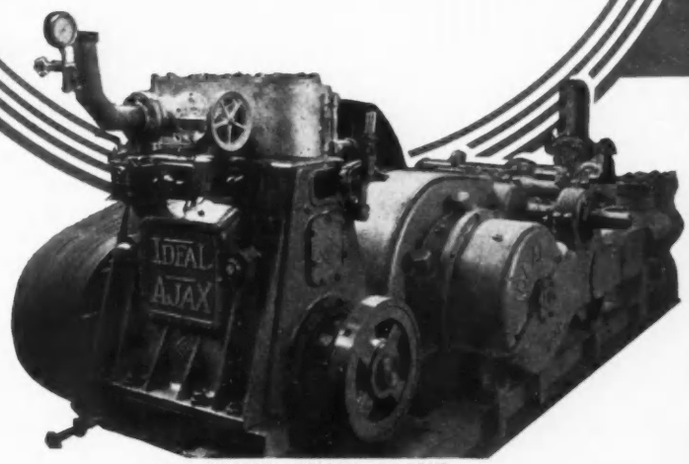


FOR ROTARY HOOKUP



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of these were experiencing any serious trouble in obtaining an adequate supply of shelf items—wire lines, hand tools, rotary chains, machinery and equipment parts, and what-not to fill petroleum industry orders.

"The majority of the supply companies maintain stocks by extending the preference ratings received from petroleum industry operators to the manufacturers of the material. Whenever their stocks are depleted, or become dangerously low and it is necessary that these be built up, the supply companies prepare and file PD-1X applications—now known as WPB-547 Forms—with the wholesale and retail trade division of the War Production Board. In order that a friendly home, manned with a sympathetic personnel who know petroleum industry problems and materials, would be available to process and expedite these applications, a petroleum supply section was recently established in the wholesale and retail trade division. In the majority of instances, the oil field supply companies are able to maintain adequate store stocks by extending to their manufacturers the AA-1 and AA-2X ratings received from production operators.

Supplier Can Replenish

"The petroleum supply section of WPB provides a guarantee that when supply company stocks are depleted and cannot be replenished through the extension of the AA-1 or AA-2X ratings that they can be re-established by filing WPB-547 applications with the petroleum supply section of WPB. A group in the materials division of the Petroleum Administration for War works closely with the petroleum supply section of WPB, and on this group the oil field supply companies may relay for help whenever this is necessary to expedite the applications for, or deliveries of, material to any oil field supply company. On the assumption that the oil field supply companies take advantage of the procedure available to them, there is no known reason why they cannot acquire and maintain an adequate supply of all items of material required for production operations. The materials subcommittees for the five PAW district petroleum industry committees keep a watchful eye over the stocks of the oil field supply companies and inform PAW of any overall deficiencies in these and thereby enable the materials division to work closely with the petroleum supply section of WPB and keep that section properly informed.

"Those companies who manufacture equipment which is peculiar to the production branch of the petroleum industry file CMP-4B applications with the Petroleum Administration for War for allotments of material required for the manufacture of the machinery and equipment and for preference ratings required to obtain items—such as gears, ball bearings, springs, packing, motors, and engines—from other manufacturers. PAW thereby acts both as a claimant agency and as an industry division of WPB for these manufacturers.

"It has been the ambition of PAW to process the applications of the equipment manufacturers at the earliest possible hour and thereby enable them to place their orders for materials in ample time to guarantee delivery by or before the time the materials are actually needed. As the wildcat and development well programs have been stepped up, increased amounts of material have been required by the equipment manufacturers. Advance planning and proper cooperation among petroleum industry operators, oil field supply companies, equipment manufacturers, and PAW should guarantee an adequate supply of manufactured items and an adequate and balanced supply of materials for the manufacture of these items. The stepped-up drilling program made it necessary for many of the manufacturers to file supplemental applications for additional materials. It has always been possible for PAW to make these materials available whenever their need was justified by the applicant.

"The War Production Board has cooperated with PAW in making materials available to supply the needs of the manufacturers and suppliers and, in addition, the production operators' needs for controlled materials—casing, tubing, drill pipe, line pipe, standard pipe, structural steel, and wire lines. Materials are now flowing into the petroleum industry at rates which are generally equal to the industry's consumption of materials.

Do Not Order Excess

Ample tubular material is now available for all operations if all operators apply for no more material than they believe they will require, and then place delivery orders for the full allotments. It is realized that it is not always possible to make definite future plans for all operations. Therefore an operator may occasionally apply for, or place delivery orders for, more materials than are actually required. When an operator acquires an allotment of material and later finds that a part of the allotment will not, or may not, be required, the unneeded amount should be promptly returned to PAW. Whenever a delivery order for controlled materials is cancelled by an operator, PAW should be promptly notified. To the extent that operators do not use allotments and to the extent that operators cancel delivery orders—and do not notify PAW—to that same extent materials are withheld from the petroleum industry.

"For the fourth quarter of this year, 280,000 tons of carbon steel and 30,000 tons of alloy steel were allotted to PAW for re-allotment to production operators — primarily for oil country tubular goods. For every ton of these allotments which dies on a piece of paper in the form of an unused allotment or a cancelled delivery order, the petroleum industry does not acquire and thereby loses a ton of oil country tubular goods or other controlled materials. It is far better to return allotments of unallotted or unacquired material to PAW, and then later file supplemental applications for this same material, than it is to deny the petroleum industry the use of unallotted or unacquired material.

"It is planned that 60,000 tons of casing, tubing and drill pipe will be delivered from mill stocks during the fourth quarter of this year and that 15,000 tons of these items can be obtained from field stocks. The distribution of material from both stocks will be effected through PAW district offices. As we all know, the mill stocks are intended primarily for the use of the smaller operators who do not carry their own inventories or who are unable to plan their operations far enough into the future to enable them to obtain materials from regular mill rollings. Normally, 30 days will elapse between the day an operator files a purchase order with PAW district office for a mill stock "MS" certification and the day the material will be actually delivered to the operator. However, the mill stocks will also be available to those larger operators who need material for operations they were unable to plan in advance and for which operations they can not make material available from their own stocks.

The field stocks are being maintained for the wildcat operations of all operators who do not have material on hand for drilling or completing wildcat wells. To the extent these stocks exceed wildcat drilling needs, they will be available to fill emergency and MRO needs. Since a premium of approximately 10 percent will be paid for material acquired from field stocks, it is anticipated that the predominating majority of all orders will be filled from mill stocks and from regular mill rollings.

Plan Ahead

"All operators — those who drilled more and those who drilled less than 40,000 feet of hole during 1942—should plan their operations as far as possible into the future and place orders for material to be delivered from regular mill rollings or M-21-B-2 stocks, rather than from the earmarked mill or field stocks. These stocks will provide

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cushions which should guarantee that tubular material is available when required for use in any authorized operation.

"The 30,000-ton balance of lend-lease oil country tubular goods is now being made available, at lower specifications and reduced prices, for petroleum industry use. For example, the 6⅝-inch OD 20 pound J-55 Range 3 seamless casing will be sold at a delivered price equal to that of 6⅝-inch OD 19.45 pound thread and coupled seamless line pipe. This material may then be used by an operator as 6-inch line pipe, as 6⅝-inch casing, or as 5½-inch casing. Each PAW district office has a list of the material and a price schedule at which this material may be purchased by petroleum operators.

"From the remarks which have been made, you will observe that advance planning and reasonable cooperation on the part of production operators—the equipment manufacturers—the oil field supply companies—the pipe mills and other producers of controlled materials—and PAW, should guarantee an adequate supply of all materials for all authorized production operations. The possible exceptions to this statement are items of material normally acquired through distributors, such as internal combustion engines.

"Because petroleum industry operators are unable to accurately determine their future needs for internal combustion engines and a few other items, and since past experiences of the distributors and manufacturers, coupled with their knowledge of the petroleum industry and its future requirements, place these distributors in a position to provide for all reasonable petroleum requirements—they must assume and discharge the responsibility of providing an adequate supply of engines, engine parts, and other items of material which are normally acquired through them. From the day a piece of steel enters the plant of an engine manufacturer, six months or more elapse before that piece of steel emerges from the factory in the form of an engine. Distributors and manufacturers must therefore consult frequently with petroleum operators to be able to provide programs which will make an adequate supply of engines and parts available when and as these are required for petroleum industry use. If, after properly planning their operations, distributors and manufacturers experience difficulties in making an adequate supply of material or manufactured items available, they may depend on both WPB and PAW for assistance in relieving conditions which interfere with an adequate supply of manufactured items for petroleum operations.

"There has been a justified tendency on the part of production operators to acquire and maintain rather large stocks of material. This is natural because deliveries have been uncertain and every operator was required to take whatever steps seemed necessary to protect his operations. It should no longer be necessary to maintain inventories at the relatively high level they reached during the past two years. Those operators who have been maintaining their own stocks of shelf items and who have been carrying large inventories can justifiably make a close study of these and begin to reduce stocks of most items to a point where they approach normal levels.

"The PAW Materials Redistribution Program No. 2 was issued July 9, approximately seven weeks ago. This program included three schedules of different items of material and defined "surplus" with respect to the items included in each schedule. The majority of operators have not reported their surplus and idle stocks to PAW. Those who have not, should do so without further delay. When an operator disposes of any reported surplus material, he should be able to replace the material by or before the time it is actually required for use. Much surplus material has already been made available for use in completing 100 octane aviation gasoline and other plants, and in conducting petroleum operations and for repairing plants and equipment for which material was not readily available elsewhere. After all inventories of all operators are brought down to and kept below the levels permitted by Preference Rating Order P-98-C and the PAW Redistribution Program No. 2, all operators should still have on hand or available to them through distributors, suppliers, manufacturers and producers, all materials required for authorized petroleum operations."

Oil Men Are on Post-War Committee

A special committee on utilization of war plants and surplus property, to lay plans for post-war conversion of industry, has been set up by the United States Chamber of Commerce with Albert C. Mattei, president of Honolulu Oil Corporation, San Francisco, as chairman. Mattei is a vice president of the chamber.

Twenty-six other representatives of industry, including officers of companies engaged in the production of raw materials, the manufacture of war supplies, industrial machinery and transportation equipment, the building and operation of ships, the manufacture and distribution of consumer goods, and banking, comprise the committee.

"Even before military operations reach their greatest intensity, the war agencies are finding that they have excess stocks of some kinds of war materials and supplies," the chamber said in announcing the committee. "The accumulation of such stocks is inevitable in a highly-mechanized war. New weapons, redesigned facilities and necessary changes in the fighting man's equipment make obsolete munitions and supplies previously in use.

"As the war goes on and comes to a close, the problem of the disposition of surplus property will become increasingly important. There will be the problem at the close of the war of the proper and efficient utilization of the great special-purpose manufacturing plants.

"Looking ahead at the immensity of these problems and in the recognition that they will affect nearly every line of business, the national chamber has set up a strong committee which will undertake immediately, preliminary consideration of the entire subject and devote itself continuously to specific problems as they arise."

In addition to Mattei, two other members of the committee are oil men—Paul Ryan, Cleveland, chairman of the PIWC subcommittee on post-war readjustment, and H. C. Wiess, Houston, president of Humble Oil & Refining Company.

The first meeting of the committee will be held in Washington September 9 and 10, when a preliminary survey of the scope and extent of the problem will be made.

British Seek Better Gasoline Substitutes

While producer gas or gasogene equipment for propelling motor vehicles has come into considerable use in the United Kingdom, there is now under way study of lighter designs that could be fitted quickly to motor engines and consume less space on the chassis.

Suitable fuels for these vehicles also are being further studied. Those found practical include anthracite activated with sodium carbonate, high-tempered coke, certain patent fuels, and methane.

Methane has been found to have excellent properties for propelling motor vehicles, and it may be placed in neater containers than those required by gas producers.

The principal difficulty with methane is the shortage of materials for tanks required to store the gas. The methane is liquefied, kept at very low temperature, and subsequently heated for use in the engine.

Permian Basin Assumes Greater Importance As a Source of Oil

Recent deep sweet-oil discoveries indicate major producing fields are in the making. With nation needing petroleum, this situation presages active leasing, prospecting and development campaign

By H. H. KING, Staff Writer

IMPORTANCE of the Permian Basin, centering upon West Texas and Southeastern New Mexico, as a source of oil reserves assumes greater significance through recent discovery of prolific Ordovician producing areas that yield sweet oil comparable in quality with Mid-Continent grades. Conditions responsible for prospecting and development of Ordovician horizons in the basin on a restricted basis have lately been removed by wartime requirements. Recent deep discoveries indicate that major producing areas are in the making, and that Ordovician zones may be productive at scattered points throughout the basin.

Fourteen structures in the West Texas portion of the basin have from one to 85 Ordovician wells on production, and five of these areas were added within the past 15 months along a general north-south trend in Ward, Winkler and Andrews Counties. The latter are on the west flank of the central platform, or buried mountain ranges that are also responsible for production trends in the regular Permian. However, the majority of the Ordovician fields are not productive in the regular Permian.

These recent strikes, varying from 7800 to 10,705 feet in depth, have been more effective in stimulating the purchase of acreage and the launching of aggressive development programs than earlier Ordovician discoveries. The demand for high-gravity sweet oil and the removal of stringent production restrictions have altered the outlook of participants, who are prepared to spend from $90,000 to $200,000 per well in establishing oil areas. Higher prices are anticipated, thereby shortening the pay-out period.

Ordovician production in the Permian Basin involves a greater average expenditure per well to discover and develop than any other sector of the Southwest. Numerous prospects have cost from $250,000 to $400,000. Producing depths range from 4300 to 10,705 feet, with a predominance of hard lime to negotiate. Fields in Ward and Winkler Counties have chert beds between the Permian and Ordovician series that retard drilling to a few feet per day, while the Kermit-Ellenburger area has an added handicap in the form of heaving shale. Operators generally calculate on an expenditure of $12 to $15 per foot as the over-all cost in drilling wildcats to a decisive depth in the Ellenburger, or basal Ordovician.

Presence of the Ordovician beds and their production possibilities became known in December, 1928, when Texon Oil & Land Company's University 1-B, Big Lake field, blew in with a predominance of wet gas while drilling with cable tools at 8525 feet. This strike was the first try for Ordovician production in the basin, and temporarily held the producing depth record. The well started flowing at rate of 200 barrels of high-gravity oil daily. The volume of oil increased steadily for 22 months for a peak flow of 5000 barrels daily. This discovery produced 932,809 barrels within 13 months, then added in excess of 1,000,000 barrels during the following two years. Wells of equal productiveness followed. Total of 26 Ordovician producers and three failures have been completed in the Big Lake field, while a few semi-proven locations remain undrilled. The 26 wells produced 28,843,903 barrels of oil, or an average of 1,109,381 barrels per well and 23,643 barrels per acre to July 1, 1943. However, 10 of the deep wells are depleted. This unusual production performance was facilitated through the two participating companies having a contract to sell a maximum of 10,000 barrels daily each while other fields in the basin were restricted.

Profitable deep-pay operations in the Big Lake field failed to arouse interest of operators in the Ordovician possibilities of other Permian Basin fields until recent years because of rigid production restrictions imposed upon old wells in the Permian. Scattered wildcats were drilled without results. In 1936, the Sand Hills structure, Crane County, contributed the basin's second Ordovician strike with a small producer from Simpson. Followup exploratory work uncovered prolific Ellenburger oil pay on the south end of the original Permian producing area, and later a third sector, centering three miles south, with a failure between. The Sand Hills structure has not been fully exploited for deep production.

Development of Ellenburger production in the Apco-Warner field in 1939 caused a shift in deep operations to northern Pecos County. The nearby Abell field, which produces principally from McKee and Waddell sands of Simpson age and from Ellenburger dolomite on the east central portion of the structure, was uncovered in 1940. It became apparent that these two Pecos County areas are on a geological trend from Sand Hills, and two small Simpson areas have since been discovered along the strike in Southern Pecos County. The Heiner and Wentz pools were added to Pecos County's Ordovician list in 1941, but neither have indicated importance. The second well for the Wentz pool was completed from Cambrian, being the first for this zone in the state.

Pecos County has been given the greatest number of Ordovician prospects, providing subsurface information that will lead to new strikes. This

county has two outstanding deep prospects, including Phillips Petroleum Company's Price 1, currently drilling in unidentified formation at 12,580 feet, or 206 feet short of the basin's depth record, with considerable gas production mudded off below 11,555 feet. The spectacular Yates shallow field, centering upon Pecos and Crockett Counties, remains a major Ordovician prospect, although Standard Oil Company of Texas' recent Ellenburger failure on the southwest edge of the regular producing area recovered comparatively little free oil from Simpson sand at 8709-19 feet. This failure logged top of Ellenburger 1713 feet low to a Crockett County dry hole three miles east of the south end of the Yates field. Information provided by these two tests reveal that the Ordovician beds rise sharply within the Yates field proper, and should be a substantial contributor to the crude reserves of the basin.

Large Area

The Barnhart field, situated in Southeastern Reagan County and the most easterly deep area in the basin, embraces the largest area with 3520 acres on production. It is destined to attain considerable size, as a mile north extension in process of completion has established the high point of the structure, and the thickest and most productive Ellenburger pay lies to the north of the discovery. Operators are restricting development to 160-acre well spacing, except for one unit. This field was opened in September, 1941, and is dependent upon trucks for market outlet. A single failure is on the west edge of the structure.

Ordovician West Flank of Central Platform

Ordovician oil possibilities for the west flank of the central platform region became apparent in 1940 when the first test drilled in Ward County below the Permian indicated production from Ellenburger, topped at 9002 feet. This prospect encountered mechanical difficulties in drilling broken pay to 9187 feet, making it necessary to abandon the lower portion of the hole for completion as the basin's first Silurian producer. The Monahans pool discovery, 18 miles north by west and near the north line of Ward County, and the Embar-Ellenburger area, southern Andrews County, occurred in 1942 to mark the beginning of a popular production trend. The Monahans area is receiving its second Ellenburger test, while the Embar deep zone is partially defined through the drilling of 12 Ellenburger producers and five failures, except to the south.

Three consecutive Ellenburger discoveries, representing initial deep explorations in Winkler County, served to emphasize the Ordovician possibilities of the west flank of the central platform region. Magnolia Petroleum Company opened the Kermit-Ellenburger area, situated in a syncline between the Keystone and Kermit fields, in logging distillate in Ellenburger at 10,460 to 10,640 feet followed by porous oil-saturated dolomite to 10,705 feet. This well was completed through perforations near base of pay after plugging off bottom-hole water.

Ideal structural conditions for accumulation of oil in the deep zones noted by geologists in the development of the Keystone field's regular Permian horizons were confirmed when Amon G. Carter's Walton-Pure 2-C, 3 miles east of the Kermit-Ellenburger pool, logged 307 feet of prolific gas-distillate section in top of Ellenburger, then penetrated the oil zone 131 feet for completion at 9655 feet. This discovery established a potential of 6788 barrels of 40.7-gravity oil, gas-oil ratio of 1567/1, flowing through 1-inch choke on casing and ¾-inch on tubing, with 7-inch pipe at 9550 feet, or 26 feet below the first oil saturation. Thickness of the oil zone remains to be determined, although the well is 438 feet in Ellenburger dolomite.

Big Field Indicated

The combined thickness of the gas-cap and oil horizon is supported by geophysical information in heralding the beginning of a major field that will have recoveries that are comparable or better than the performance of the deep pay in the Big Lake field. Four rotary rigs are in service on sites to the north, south and west of the Keystone deep well, and two or more operators are to participate in the development shortly.

Winkler County's third and more recent Ellenburger discovery is Stanolind Oil & Gas Company and Shell Oil Company's Blue 1, near the Ector County line, rated at 1370 barrels of 45.9-gravity oil, with gas-oil ratio of 1392/1, flowing through 25/64-inch choke. Production is from perforations and open hole at 10,647-10,697 feet, although broken oil pay was logged from top of the Ellenburger at 10,497 feet to the bottom of the hole. No gas-cap was encountered. The area is designated as the Wheeler field, and is situated 16½ miles north by east of the Monahans strike and 15 miles southeast of the Keystone deep producer. Magnitude of this producing area is highly speculative, although substantial companies paid comparatively high prices for outlying acreage and royalty interests, favoring northwest-to-southeast trend as is the case in the Kermit-Ellenburger and Keystone-Ellenburger areas. Four or more rigs are to be placed in service.

Two more wildcats are underway in the east half of Winkler County with the Ellenburger as their objective. Prospecting has also shifted north into western Andrews and Gaines Counties, which have two projects each.

New Mexico

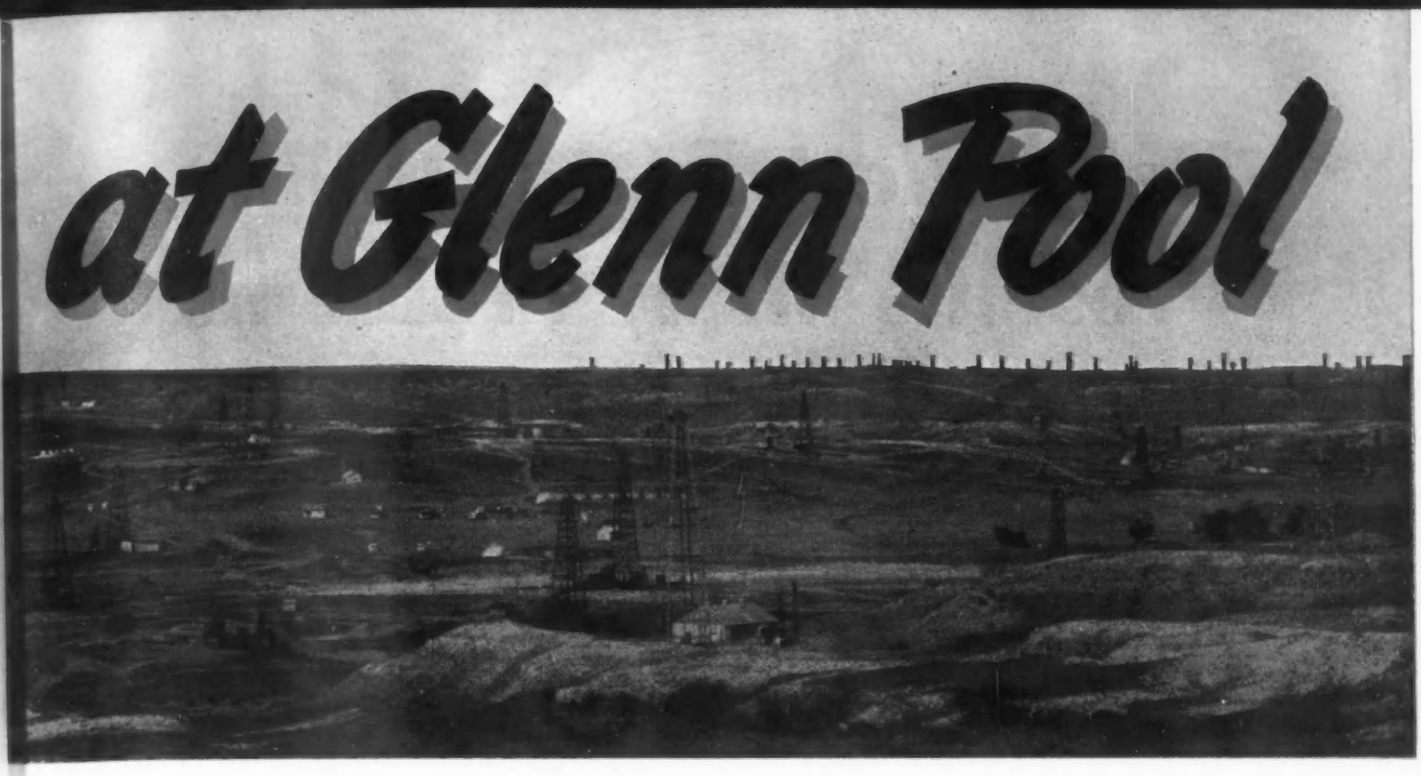
Southeastern New Mexico's Pre-Permian explorations have been confined to a single test in Roosevelt County that entered granite before reaching the Ordovician and a failure in Lea County. However, the latter logged a normal section of Montoya, Upper Ordovician, Simpson and Ellenburger before reaching granite. Non-commercial quantities of free oil were recovered from Simpson and Ellenburger to indicate close proximity to a producing structure. Information gained from this exploratory test has resulted in the drilling of a test 6 miles south, and the authorization of an Ellenburger project 1⅜ miles northeast. Roosevelt County has been assigned an Ellenburger project by Continental Oil Company, subject to approval of unitization of federal leases. Chaves County is receiving its first try for Ordovician production, while Eddy County has not participated in the deep explorations in spite of its numerous old shallow fields.

Recognition of the vast reserves of sweet crude to be derived from the Ordovician zones has been given by pipe line companies in projecting facilities that will permit segregation of this oil from the sulphur-contaminated Permian horizons. Magnolia Pipe Line Company has authorized construction of a separate carrier, subject to approval by PAW, to serve Ordovician areas within reach of its system.

Ordovician prospecting is active in all portions of the basin, and will progressively increase in volume as other districts and states lag in fulfilling petroleum requirements. Absence of sufficient heavy rotaries in the district is a factor in delaying operations scheduled.

Oil Is Ammunition

Oil and natural gas are vital to this war and it does not help to win the war for men who have long been trained and skilled in this industry to leave their present jobs. We wish to emphasize that while planes, tanks and ships fight the battles, they cannot fight without oil to fuel them. The production, refining, transportation and distribution of oil and gas are all necessary.—*Joint statement by Manpower Commission Chairman Paul V. McNutt and Petroleum Administrator for War Harold L. Ickes.*



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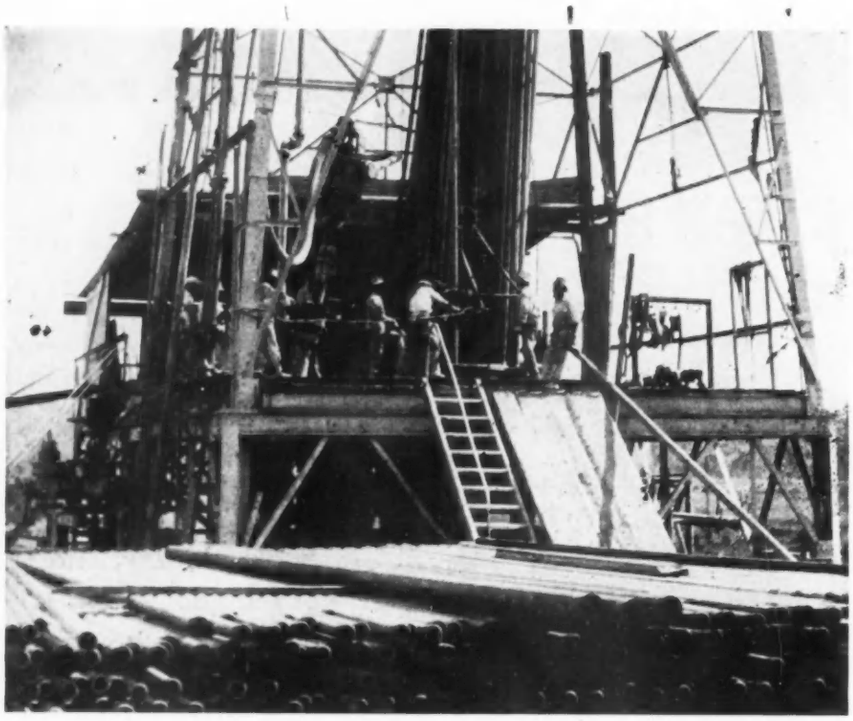
Deep West Texas Drilling Presents Many Problems

Great depth, exceptionally hard-to-drill chert zones, severe mud problems, and dangers of blowouts are conditions that require the best in heavy-duty rotary rigs and skilled manpower

By FRANK BRIGGS, Staff Writer



DRILLING to the deep Ordovician formations of West Texas requires an overhauling of practices heretofore prevalent in the area. The best in heavy-duty rotary equipment is essential for several reasons. Exceptionally hard lime and chert formations present extremely tough digging conditions. Salt beds pierced in the upper horizons and filtration losses necessitate special mud control. Precautions must be taken against blowout, some of the producing areas having registered flowing pressure comparable with deep fields in the Gulf Coast. Water for drilling also is a problem in many parts of the territory.

Drilling Rigs

All three types of rotary rig prime movers—steam, internal combustion and electric—have been used in drilling these deep wells.

Electric rigs have been powered with 750-horsepower motors in drilling wells in the Barnhart area of Reagan County. Steam rigs have predominated in drilling deep tests in Winkler County, with some of the rigs using separate steam-engine drives for both rotary and drawworks. In Ward County, the predominating rig is the diesel. There are tandem-drive units of 350 horsepower each.

In most areas, the preliminary problem is water. This usually determines the type of motive power for the rig, but not necessarily so. For instance, in the Monahans area of Ward County, it was thought at first that water would be scarce and that diesel rigs would be desirable. This area is covered by shifting sand dunes. After drilling three unsuccessful deep water wells, a source of water supply indeed seemed a problem. Then it was found, that abundant water could be obtained by merely scooping pits in the sandy surface. Pits were dug by tractor scoops 8 to 10 feet deep. In upper Winkler County fields, steam rigs are furnished ample water by moderately shallow wells. Water is scarce in the Barnhart region of Reagan County.

Tough Drilling

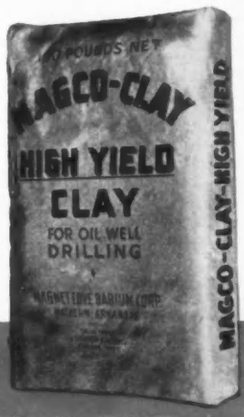
One of the greatest problems encountered in drilling deep wells in West Texas is the necessity of penetrating very hard chert sections, which are interspersed just below the Permian formations within the Devonian zones.

In these formations, rock bits seldom succeed in drilling more than 5 feet before being rendered unfit for further use. The first problem is maintaining gauge; the second, tooth wear. Seldom does the total chert section encountered exceed 800 feet, but no other section is as slow and expensive to drill. For instance, in one of the Ward County wells, the bore encountered scattered chert between 7560 and 8030 feet after drilling through the base of the Permian at 7280 feet. This 470-foot section required 51 days to drill, used 100 bits. From 8460 feet to the top of the Simpson at 8820 feet, another 360-foot chert zone was encountered that required 27 days and 43 bits to drill. It is reported that the drilling of these two chert sections exceeded $60,000 in cost.

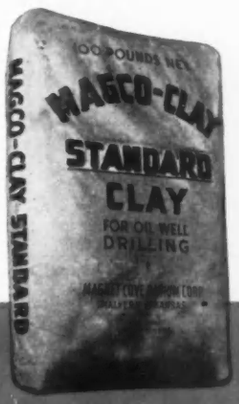
On one Winkler County well, a total of 189 rock bits were used in drilling the chert section, out of a total 292 bits used in drilling to 11,000 feet. A well three miles away found the Ellenberger 1256 feet higher, and consequently used fewer bits; of the total of 201, only 68 could be attributed to drilling chert. In the Barnhart area, only 110 bits are used as an average and 75 may be considered

MUD SERVICE *by* MAGCOBAR

MAGCOGEL BENTONITE, Colloidal Gel-Forming, Wall-Building Material, is practically 100% pure colloid manufactured from the finest Wyoming bentonite available. The suspending and wall building qualities it imparts to the drilling fluid are unsurpassed.



MAGCO-CLAY HIGH-YIELD was developed to provide a low-cost, high-yield clay for spudding in, core drilling and work-over jobs where a low-weight mud is desired. It is also recommended for use in drilling anhydrite and salt contaminated formations. Mixed to weigh 8.9 pounds per gallon, the viscosity is 17.5 centipoises, filtrate 9.0 cc. A.P.I., pH. 5.8 and yield 55 bbls. per ton.



MAGCO-CLAY STANDARD is a high quality work-over clay having a low filtrate, high yield and is easy mixing. Mixed to a weight of 10 pounds per gallon, the viscosity is 17.5 centipoises, filtrate 11.5 cc. A.P.I., pH. 4.9 and yields 18 bbls. per ton. Its low pH. resists flocculation by salt water.

MAGCO-FIBER is a soft cellulose fiber with a bentonitic coating whose overlapping fibers form a coating which is impervious to water. When added to the drilling fluid it seals fractured, fissured or porous formations and thus aids in restoring lost circulation.

MAGCO-MICA is an efficient wall building material recommended for use in conjunction with regular drilling muds to prevent loss of water to the formations and to correct mild cases of lost circulation. Its flake shape allows it to be deposited against the walls of the well bore by the circulating pressure.

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MUD ENGINEERS LOCATED IN ACTIVE AREAS THROUGHOUT GULF COAST AND MID-CONTINENT

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as consumed in the shale sections. Usually no chert is found in this area.

The particular effect of the chert upon the drilling bits is that the gauge cannot be maintained. This part of the bit wears rapidly in this particular formation. Hard facing the gauge of the bit has proved successful to the extent of allowing at least 10 percent and usually more drilling with the bit in chert.

In attempting to minimize the cost of chert drilling in these deep tests, experimentation has been conducted in the field with a new type of core bit. This bit is faced on its cutting edges with diamonds—350 carats worth. The individual diamonds are rough cut and are approximately 1/12 to 1/3 carat each. The diamonds are cast into the head of the bit in a setting of aluminum bronze, a metal alloy with a very low melting point. Made to cut an 8⅝-inch hole and obtain a 6⅜-inch core, the bit is capable of cutting 40 feet of hole before being withdrawn. Although, the rough-cut diamonds are relatively inexpensive, it is believed that 90 percent of the diamonds can always be recovered when refacing the bit.

Mud Practices

In striving for the ideal rotary mud which is free from abrasive cuttings, non-corrosive, sufficiently weighted, has proper viscosity, combines "gel" properties for static conditions with suitable liquid consistency for drilling, has low water loss, will not settle appreciably, has a low freezing point and is inexpensive, West Texas operators are not different from mud users in other producing territories. The difference between the mud practices in this territory and other areas lies in two conditions: mud used in drilling in West Texas generally is made from admixtures of commercial manufacture or it is made of salt water with a salt concentration ranging up to the saturation point.

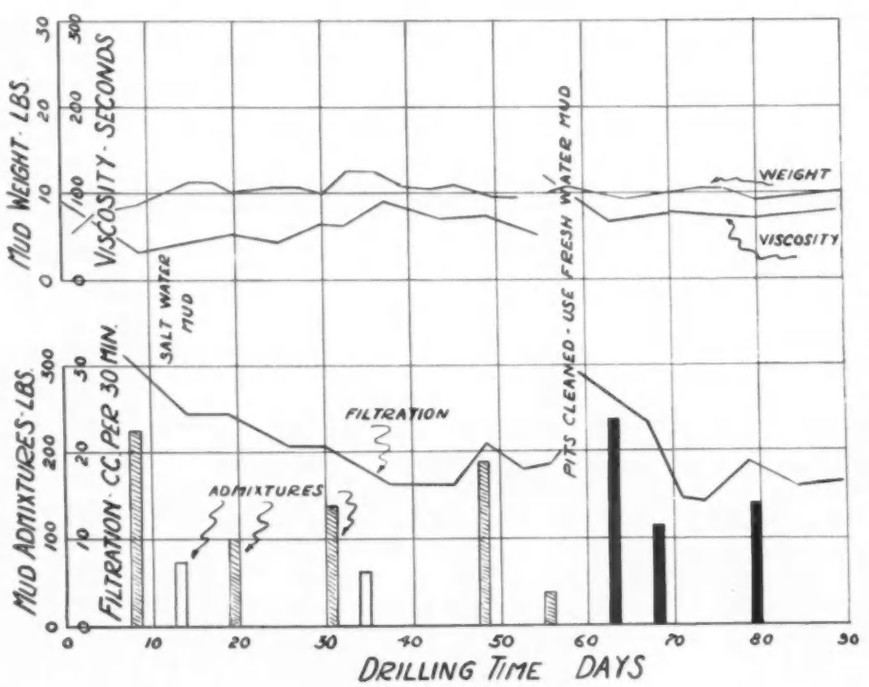
In the present deep-well-drilling program, the factors that determine the type of mud to use are location and casing program. It is general practice in the Permian Basin to spud the wells with fresh-water mud or clay. After setting the surface pipe, no particular attention to the mud is required for the red beds underlying the surface for a good depth make sufficient and good mud for this zone drilling. However, after the red beds are passed, the underlying salt section requires careful consideration of the mud. In drilling this section, the mud becomes highly concentrated with salt which it retains until completion of the well—unless an intermediate string of pipe is set through the salt section. If this is so, fresh-water mud usually is used to completion. Thus on wells having the salt zone, the casing point determines the mud type.

The control of water loss (filtration), viscosity, weight and settling properties of mud, is an important phase of drilling. In facilitating this control, a daily chart of these factors gives the operator a very clear overall picture of the mud condition at all times.

The advantages of a controlled mud, with regard to the above-mentioned factors, usually are considered as follows: Proper viscosity assures good return of the cuttings; a low-filtration mud reduces the danger of stuck pipe or tight hole, improves casing cement jobs by reducing channeling, reduces sloughing of shale, reduces water loss in pay zone and improves any logs taken of the hole; proper weight assures better mud returns, offers better control of sulphur water, oil or gas pressures. In general, the established practice in the deep drilling is to use a mud with a viscosity ranging from 34 to 38 seconds, a filtration not exceeding 20 cc per 30 minutes, a weight from 9.5 to 10.5 pounds per gallon and a settling rate not exceeding 5 percent in 24 hours. These are figures for the mud while drilling in the sections where the mud must be carefully controlled.

The control of both fresh- and salt-water mud is dependent upon the use of commercial admixtures. The improvement in viscosity for a salt-water mud is accomplished by the addition of a gel material either in commercial mixtures or in natural clay. Filtration control in the salt-water mud, which incidently is one of the most important factors, is accomplished by maintaining a low water loss. Addition of an inorganic starchy-substance, with an added fermentation control agent (caustic), maintains the low water-loss mud. The general practice is to use 2 or 3 pounds of this compound to a barrel of mud. This amount will reduce the filtration from 150 to 5 or 10 cc in 30 minutes and also reduce the filter cake from 1/2 to 1/16 inch. In a salt-water mud, added weight is seldom necessary. Salt provides all the weight needed, as it weighs approximately 10 pounds per gallon.

Salt-water mud can be used to drill to completion regardless of whether or not the salt section is cased off. However, fresh water mud is easier to control and if the salt section is cased off, many companies prefer to change to a fresh-water mud. In changing over to fresh-water mud, the pits must be scrubbed for traces of salt will tend to destroy the easily controlled properties of the fresh-water mud. Viscosity control of a fresh-water mud is maintained by adding water for thinning or adding a commercial mixture containing bentonite if it is desired to thicken. The use of this bentonitic material or in conjunction with a caustic-quebracho solution or a starchy-caustic mixture will reduce water loss. Weight of a fresh-water mud is increased by the addition of bentonite clay or similar compounds such as those containing barytes. As under any conditions, lost re-



Maintaining proper control of mud is an operating problem of importance in drilling deep tests in West Texas. Charts similar to the one shown here have proven of great aid. The three most important mud factors (filtration, weight and viscosity, plus the admixture data) are plotted against drilling time.

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Skilled manpower is highly desirable due to the problems of using heavy equipment, of properly controlling mud properties, dangers of blowouts and tough digging presented by chert formations. Current shortage of manpower, therefore makes this a troublesome problem.

turns are improved by the addition of a bulky material to the mud.

In general, good mud practices employed in this area involve the following: outside water is prevented from flowing into the pits; lubricants and well oil are kept from the mud to facilitate good logging; long, narrow pit designs, comprising two or three compartments are used; discharge from mixer is into flowing mud stream not far from suction; mixtures are added slowly; caustic solutions are added directly to mud ahead of screen; water is added in a steady stream ahead of screen; lost returns are detected immediately and remedies taken, and weight, viscosity, filtration and chloride content are recorded twice each tour.

The average cost of mud to drill a well to completion in the Barnhart area is $1500. This is relatively easy digging as deep drilling in West Texas goes. Spudding is done with a clay or the bentonite material, and as with the usual drilling in the Basin, the mud requires but little attention while drilling through the red beds. At approximately 3800 feet, the mud begins to require care. A 10.2-pound mud with a 43-second viscosity and a 10-15 cc water loss is carefully maintained. From 4000 to 4800 feet, water in a shale section that tends to cave is responsible for lost returns and sticking pipe tendency. After passing this shale section, no particular treatment is needed for the mud and it is allowed to develop a water loss of around 70 to 80 cc, a weight of about 9.8 pounds and a viscosity of 34 seconds. Nearing completion at 8800 feet, the hole again requires that careful attention be given the mud. The addition of inorganic starchy compounds, quebracho caustic bring the water loss down to the very low filtration of 4 cc. This is necessary to prevent stuck pipe. The weight of the mud reaches 10 pounds and the viscosity is raised to around 38 or 40 seconds. The usual pipe program in this area is to set 7⅝-inch at 2200 feet and 5½-inch to bottom at 9200 feet.

Manpower A Problem

The mechanical problem in drilling these deep wells is great, and skillful operation is an important factor. With the manpower situation so grave, this care and skill often is not obtained. The problem of manpower will be one of the large question marks in the Ordovician drilling program.

Aside from the actual shortage of manpower, inexperience drilling crews present a serious handicap. Many of the crews now working in the area include high school youngsters and "grandfathers." Naturally the best drilling time cannot be made under such conditions, and the dangers of losing the hole is increased.

Still another problem confronting the drilling contractor is that of keeping his rig in repair. Difficulties in obtaining new parts promptly has made it necessary to have shop repair jobs performed on many rigs. Again, inexperienced crews are found in a number of the repair shops, and their work is not up to the standard of a short time ago. Consequently, the rigs are not put back into the best of shape.

One West Texas contractor recently made only 2100 feet of hole during 30 days, although at the time in formations that were easy to penetrate. He took his rig to a repair shop, where a 77-year-old mechanic overhauled the engine and reground the crank shaft. After the work was completed, the rig ran exactly one day before returning to the shop again. This time the clutch was reworked and the engine again overhauled. Once more the rig stood up for only one day. This time the head was pulled and the engine given another workover. All in all, the rig had three different mechanics working at separate times, yet broke down four times in one week. Inexperienced repair men were the cause.

In place of experienced hands, many contractors have been forced to use "green" help—boys of high school age and men past sixty. Here a 14-year old welder prepares to make a weld on the controls.

Deep Discoveries in West Texas Add New Oil Empire

WEST TEXAS is the brightest ray of hope on the national horizon for increasing its production rate quickly. With other regions already called upon for increased output that is near their maximum optimum rate and holding no new possibilities of special note, the industry is commencing to beat a path to West Texas, as it looks for petroleum to satisfy rising consumption requirements.

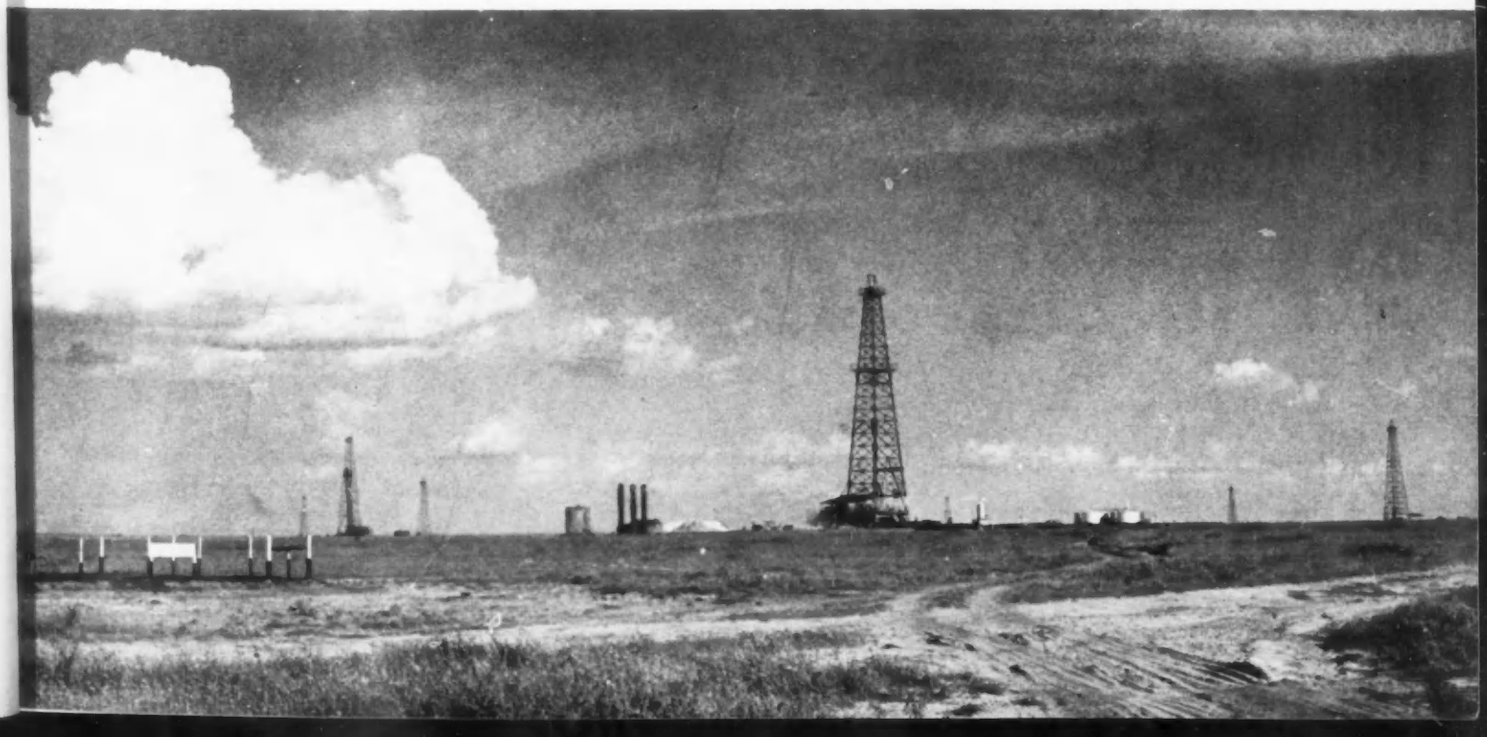
As a result of recent important deep strikes in the Lower Permian and Ordovician formations, it is now apparent that numerous deep fields will be found in West Texas under established pools that produce from shallower formations, and also from structures established through drilling of shallower failures. These appear to be the most outstanding new oil source that has been found in several years, and the industry very likely will have to depend heavily upon the indicated deep production possibilities of this territory for an adequate supply of oil to fulfill the enormous appetite of mechanized warfare.

Exceptionally large recovery rates are indicated. The original Ordovician producing area of West Texas has produced an average of 700,000 barrels per well, and recent discoveries indicate that their performance record will be equally as good. A new empire of petroleum has been opened.

It is important to realize that West Texas Ordovician formation crude, unlike the sour oils of the Permian, qualify as sweet high-gravity crude that yields attractive lube, aviation gasoline, toluene, and synthetic rubber contents. This better quality oil will enable the district to expand its market outlets, which in the past have been restricted severely due to sulphur content. As the war progresses and output of other areas proves inadequate to fulfill needs, West Texas oil will be in high demand. Exploration and development of the Ordovician formation will be accelerated as the demand for oil gains in volume.

As a result of the recent important deep strikes, West Texas is to expe-

Outstanding new oil source found in recent years in the United States is the deep Ordovician strikes of West Texas. Discoveries to date indicate that numerous deep prolific fields will be found in the territory under established shallow pools and also in other spots.



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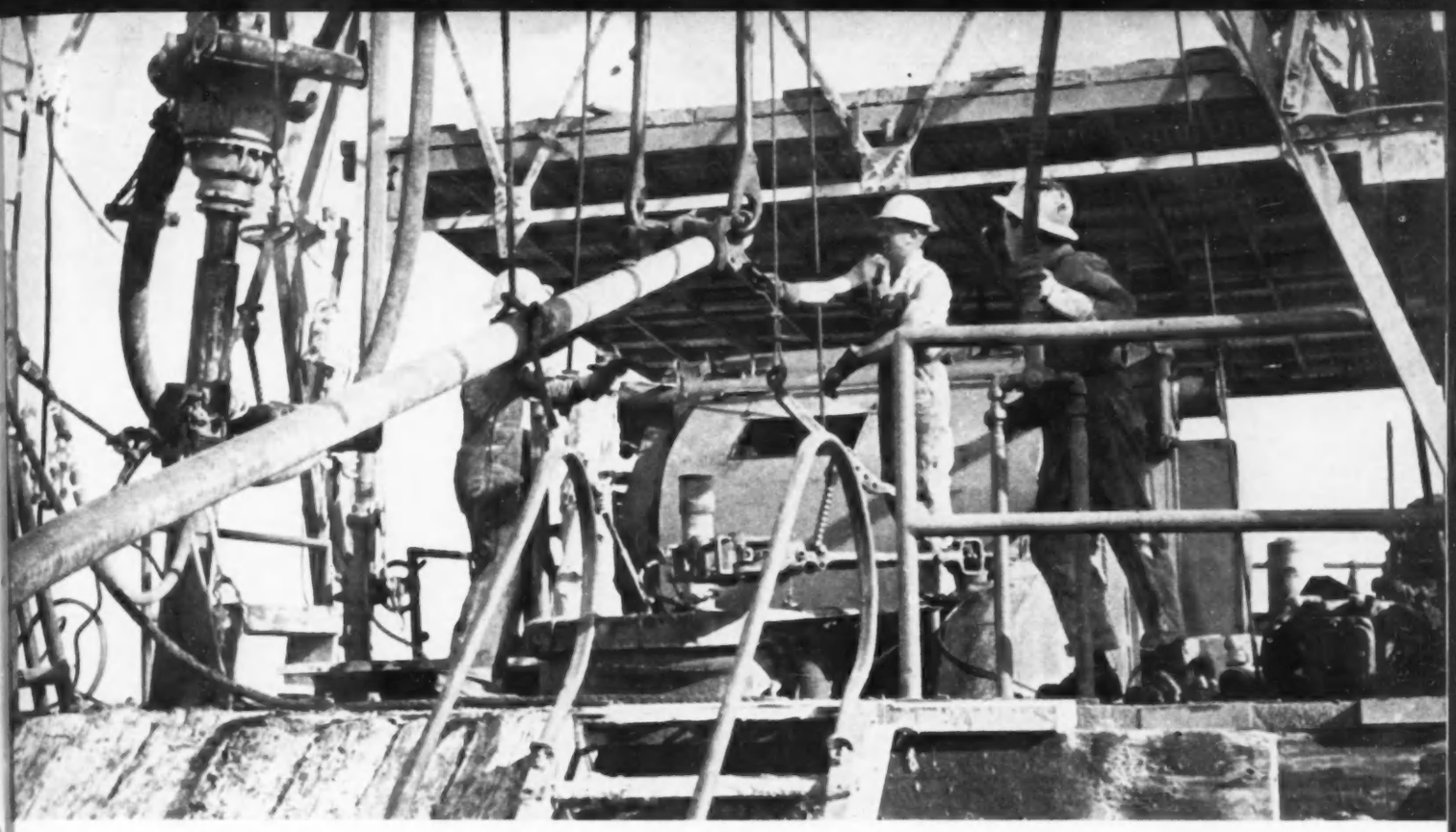

The best in rotary rigs and manpower is required for drilling to the Ordovician pay formations in West Texas-New Mexico. Presence of thick chert beds constitute extremely tough digging. In addition, pressures encountered create a constant blowout threat.

rience an enlarged drilling campaign that will average considerable greater depth than heretofore customary in this region. Already the volume of wildcat work has been accelerated by the deep discoveries. Follow-up development also has been scheduled, and may attain sizeable proportions in some spots.

Deep exploratory work in the area requires the best rotary rigs and manpower available, since the drilling is most costly and possibilities of losing a semi-complete hole are great. Some of the producing areas have registered flowing pressures comparable with deep areas in the Gulf Coast. The presence of hard lime formation and frequency of thick beds of chert affords a tough digging condition without equal in the United States.

Already West Texas is beginning to feel the influence of a greater demand for its oil. Pipe line proration has been lifted, and some of the existing systems have been enlarged in capacity. As a result production allowables have been increased in recent months. But what has occurred to date is just the start of what is to come. Additional outlet facilities are planned, which will give West Texas operators larger allowables and also provide a market for oil that will be found in current drilling campaign for deep production.

Stanolind Oil & Gas Company has received permission, including the allocation of steel, for construction of a 16-inch pipe line from near Slaughter to Drumright, Oklahoma. This is an exceptionally important development, for at Drumright this line can tie into a dozen major Mid-Continent carriers that will enable West Texas oil to move to almost any refining center in the Mid-Continent and Middle West. With only one pump station, the Stanolind line will have a capacity for 54,000 barrels daily, but additional stations would boost this capacity to more than 100,000 barrels per day. Construction work will commence in October.

Another important new pipe line outlet may be provided West Texas by Magnolia Pipe Line Company. The company has made application to PAW for priorities for a system from Midland to Corsicana, Texas. At the latter point the proposed 336-mile 8-inch line would tie into Magnolia's trunk line extending from Beaumont into Oklahoma. Three pump stations would afford a capacity for 42,000 barrels per day.

Special Section

In recognition of the switch of Permian Basin operators to deep pay possibilities and its significance to the national oil picture, THE OIL WEEKLY presents herewith a special section consisting of two unusually important tabulations and an original map of the region. Elsewhere in this issue other valuable data on West Texas are published in article form.

One of the tabulations consists of a complete list of all dry holes drilled below the Permian Beds in West Texas. It gives exact location of each test, elevation, and a double-checked report on all available geological markers encountered below the Permian. This tabulation involves about 130 wells, and includes the failures in Ordovician producing fields. Such information has never been published previously. A vast amount of work was necessary to the publication of this table. The data represent individual well information collected by THE OIL WEEKLY editorial staff since the drilling of the first Ordovician test in the Basin in 1929! A high percentage of this geological information has been checked by individual well owners as their contribution toward accurate information! This individual well tabulation of failures and plugged-back tests permits geological correlations throughout the region.

The other tabulation gives detail data on the 14 Ordovician producing fields discovered so far, including such essential information as productive area, crude yield per well and per acre.

The map has been especially drawn for publication in THE OIL WEEKLY. Much care has been taken to see that it is accurate as to scale, size and locations. It has been drawn in such fashion that Ordovician producing fields are readily distinguishable from the shallower Permian fields.

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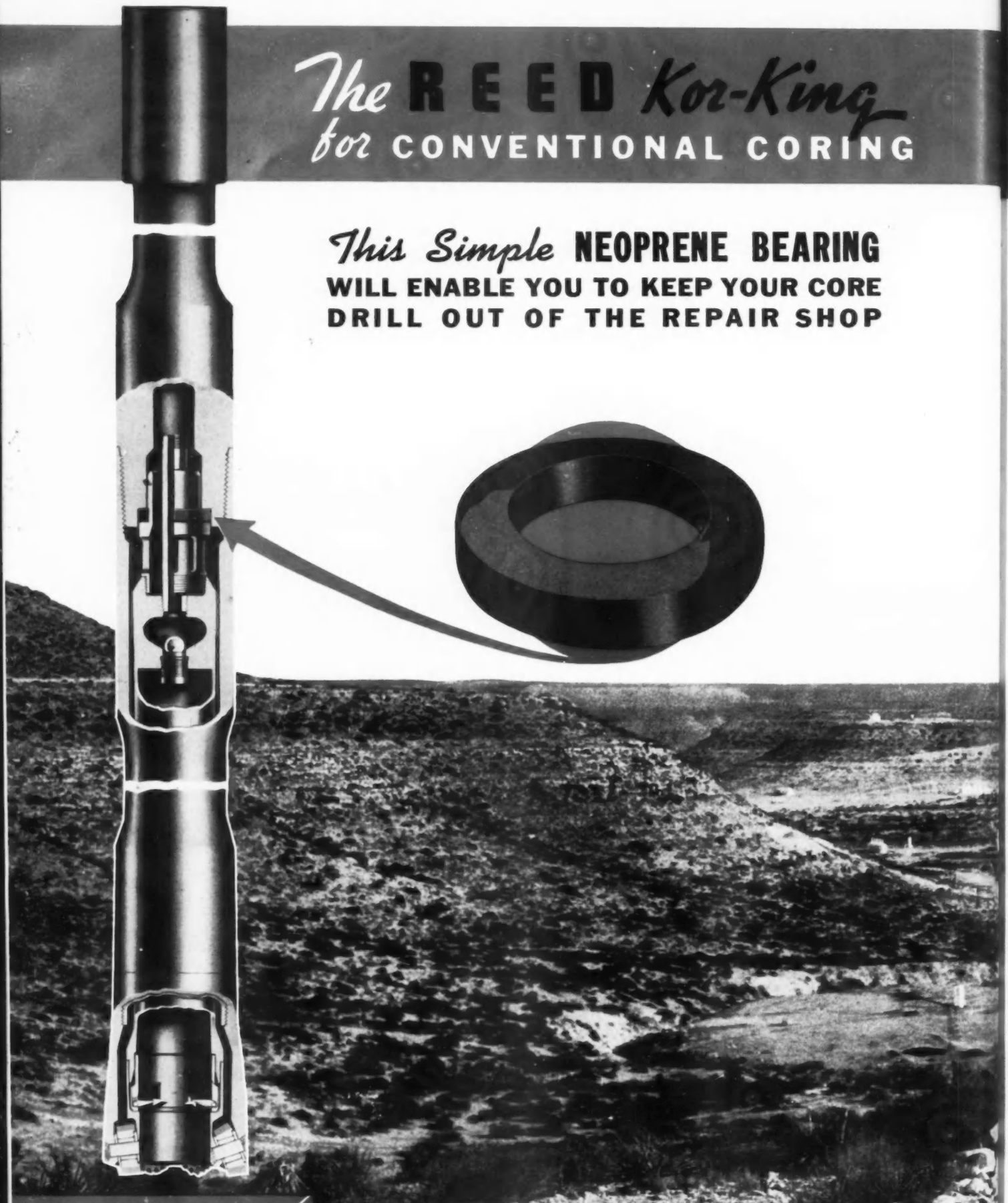

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The Oil Weekly's Compilation of Production and Geological Data on West Texas Ordovician Fields and Discovery Wells

West Texas Ordovician Development, Production and Reserve Data by Fields

FIELD	PRODUCING FORMATION DATA: Discovery Date	Range of Depths	Penetration	Name	DEVELOPMENT DATA: Acres: Total	Acres: Developed	Wells: Producing Wells	Wells: Depleted Wells	Wells: Dry Holes	CRUDE PRODUCTION DATA: August Base Daily Allowable	During First Half 1943	Cumulative Yield: To 7-1-43	Cumulative Yield: Per Well	Cumulative Yield: Per Acre	Estimated Proven Remaining Reserve	Gravity Range
Embar (Ellen.)	5-42	7799-8018	200*	Ellenburger	680	480	12		5	864	76,761	179,466	14,956	374	7,020,500	44-45
Jones	11-41	5725-5750	25	Simpson	40	40	1			25	1,084	9,187	9,187	230	10,000	42.3
McKee	9-42	6113-6186	35	Simpson	80	80	2		1	280	10,191	18,597	9,298	232	621,400	42-43
Sand Hills (Ord.)	2-36	5620-6300	25	Simpson-Ellenburger	2000	1,400	32		13	1,956	222,833	1,222,030	38,188	873	12,778,000	32-39
Abell	10-40	4985-5477	14	Simpson(McKee)	3,000	2,560										
		5432-5971	16	Simpson (Waddell)	1,500	360	85		9	4,480	371,248	1,302,786	15,327	383	18,057,000	40-44
		5800-5934	55	Ellenburger	680	480										
Apco-Warner	4-39	4488-4793	71	Ellenburger	2,080	1,280	32		7	1,184	105,507	374,348	11,698	292	14,986,000	39-42
Heiner	3-41	5382-5509	116	Ellenburger	120	80	2			39	1,633	7,902	3,951	99	217,000	35-36
Wnetz	12-41	4307-4447	140	Ellenburger	80	80	2			92	10,354	34,020	17,010	425	183,000	33-38
		4378-4392	14	Cambrian												
Reagan-Barnhart	9-41	8968-9271	80*	Ellenburger	5,000	3,520	23		1	759	90,382	207,955	9,042	59	17,392,000	43-45
Big Lake	12-28	8125-8850	150*	Simpson-Ellenburger	1,920	1,220	26	10	3	1,380	248,439	28,843,903	1,109,381	23,643	5,000,000	42-58
Monahans	8-42	10082-10364	282	Ellenburger	160	160	1			200	36,149	59,629	59,629	373	740,000	46
Kermit (Ellen.)	5-43	10460-10640	Gas	Ellenburger	160	160	1			220	15,074	15,074	15,074	94	985,000	41.7
		10640-10705	65	Ellenburger												
Keystone (Ellen.)	6-43	9217-9524	Gas	Ellenburger	40	40	1			200	5,984	5,984	5,984	150	994,000	40.7
		9524-9655	131	Ellenburger												
Wheeler	7-43	10493-10697	204	Ellenburger	40	40	1			220	1,544	1,544	1,544	39	800,000	45.9
					17,580	11,980	221	10	39	11,899	1,197,183	32,282,425			79,783,000	

* Average thickness of effective Ordovician pay. NOTE: 160-acre unit adopted in Barnhart, Monahans and Kermit-Ellenburger fields; others follow 40-acre spacing.

West Texas Ordovician Discovery Wells

FIELD	COMPANY, WELL AND LOCATION	Elevation (Feet)	Top of Pre-Permian Markers (Feet)	Initial Production (Barrels)	Size Choke (Inch)	Producing Depth (Feet)	Date Completed
	ANDREWS COUNTY						
Embar (Ellenburger)	Phillips Pet's University-Andrews 2, C SW SE Sec. 30, Blk. 10.	3246	Simpson 7660; Ellenburger 7750	2274	2 & ½	7806-55	5-14-42
	CRANE COUNTY						
Jones	Continental Oil's Jones 1, C N¼ N¼ H&TC 12, Blk. 3 (Pb from 6146 ft.)	2474	Detrital 5490; Simpson 5545; McKee 5595; Waddell 5725; Ellenburger 6040.	83	⅛	5725-50	11- 8-41
McKee	Magnolia Pet's Glenn 1, 660 ft out of M/S/NEc H&TC 20, Blk. 1.	2436	Detrital 5250; Simpson 5500; Tulip Creek 5845; McKee 6125.	226	¼	6125-86	9- 5-42
Sand Hills (Ordovician)	Gulf Oil's Waddell et al 1 C NW NW PSL 4, Blk B-27 (Pb from 6450 ft.)	2554	Simpson 5980; Ellenburger 6316.	105	Pump	5980-6050	2- 6-36
	PECOS COUNTY						
Abell	Stanolind Oil & Gas' (was Taubert-McKee-Siemoneit) Crockett 1, 660 ft from W and SW lines Lot 4, H&TC 4½, Blk. 3.	2392	Simpson 4755; Tulip Creek 4960; McKee 5270.	1970	½	5270-5357	10-30-40
Apco-Warner	Anderson Prichard Oil & Monte Warner's Masterson 1, C S½ N½ H&GN 104, Blk. 10.	2425	Ellenburger 4545.	184	⅝	4555-95	4-30-39
Heiner	Culbertson & Irwin, Inc's Heiner 1, C NE NE GC&SF Sec. 589 (Pb from 5665 ft.)	2549	Detrital 5110; Ellenburger 5128.	36	¾	5382-5509	3-25-41
Wentz	Gulf Oil & L. H. Wentz's Millar 2, C NW SE H&GN 43, Blk. 11 (Pb from 4493½ ft.)	2534	Ellenburger 4157; Cambrian 4447; Schist 4464; Granite 4493.	384	2	4307-83	12-27-41
	REAGAN COUNTY						
Barnhart	Amerada Pet's University 1-R-A, C SE NE Sec. 3, Blk. 48 (Pb from 9264 ft.)	2768	Detrital 8905; Ellenburger 8960.	1134	1	9017-66	9- 1-41
Big Lake (Ellenburger)	Texon Oil & Land's University 1-B, 250 ft E WL and 88 ft S NL SW Sec. 36, Blk. 9 (Production increased over 22-month period to 5000 barrels).	2734	Pennsylvanian 7909(?); Crinoidal 8250; Simpson 8306; Ellenburger 8512.	250	2½	8498-8525	12- 1-28
	WARD COUNTY						
Monahans	Shell Oil's Sealy-Smith 1, NE NE SE G&MMB&A Sec. 38, Blk. A (Pb from 10,545 ft.)	2736	Devonian 7280; Silurian 8135; Montoya 8600; Simpson 8820; McKee 9343; Ellenburger 10,082.	2852	2	10082-10364	8- 7-42
Kermit (Ellenburger)	Magnolia Pet's Walton-State 20, C NW NW PSL 4, Blk. B-3 (Pb from 10,774 ft.)	2934	Devonian 7620; Silurian 8803; Montoya 9105; Simpson 9460; Tulip Creek 9720; McKee 9920; Waddell 10213; Ellenburger 10460 (top pay).	589	¼	10663-10705	5-18-43
Keystone (Ellenburger)	Amon G. Carter's Walton-Pure 2-C, C SW NE PSL 1, Blk. B-3.	2955	Devonian 7324; Silurian 7438; Montoya 7775; Simpson 8185; McKee 8650; Waddell 8977; Ellenburger 9217 (top pay).	6788	1 & ¾	9550-9655	6-14-43
Wheeler (Ellenburger)	Stanolind Oil & Gas-Shell Oil Co's Blue 1, SE NW NW T&P Sec. 15, Blk. 46, T-1-S.	3098	Detrital 7860; Mississippian 7930; Devonian 8290; Silurian 8755; Montoya 9245; Simpson 9510; Tulip Creek 9780; McKee 9965; Waddell 10200; Ellenburger 10493 (top pay).	1370	23/64	10647-97	7- 8-43

The Oil Weekly's Compilation of Geological Data on Deep West Texas Failures

List shows depths at which important geological markers were encountered by all dry holes that have been drilled below Permian Beds.

West Texas Ordovician Failures

Map Coordinate	No. on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		ANDREWS COUNTY				
C-7	1	Atlantic Refg-Pete Wiggins-Ed Hyde's University-Texu 1-A, C SE NE Sec. 9, Blk. 12.	3311	Detrital 8060; Silurian 9140; Montoya 9520; Simpson 9820; Ellenburger 10575.	10760	11-30-42
C-8	2	Frank S. Perkins-J. W. McMillen et al's Cowden 1, C NE NW PSL 14, Blk. A-55.	3114	Devonian 7810.	8012	6-25-38
D-8	3	Phillips Pet's University-Andrews 1, C NW NE Sec. 32, Blk 10 (Pb to Clear Fork).	3228	Simpson 7940; Ellenburger 8354.	8368	7-15-41
D-8	4	Phillips Pet's University-Andrews 9, C NW NW Sec. 32, Blk. 10 (Pb to Clear Fork).	3234	Simpson 7775; Ellenburger 8145.	8174	10-21-42
D-8	5	Phillips Pet's University-Andrews 10, C NE SE Sec. 36, Blk. 11	3257	Simpson 7730; Ellenburger 8090.	8120	12- 5-42
D-8	6	Phillips Pet's University-Andrews 12, C SE SE Sec. 24, Blk. 11.	3277	Simpson 7860; Ellenburger 8128.	8195	12-15-42
D-8	7	Phillips Pet's University-Andrews 21, C NE NE Sec. 35, Blk. 11.	3270	Simpson 7865; Ellenburger 8395.	8425	11-21-42
		BREWSTER COUNTY				
....	..	Floyd C. Dodson et al's Texas American Synd. 1, C NE NE GH&SA 66, Blk 10 (cleaning out to deepen).	4233	Permian-Detrital contact 5285; Devonian shale 5347; Devonian chert-dolomite 5665; Silurian (Crinoidal) 5989; Intrusive Sill 6079-6459; Maravillas 6459; Simpson 6733.	7777	5- 4-38
		BRISCOE COUNTY				
....	..	Phillips Pet's Montague 1, C NW NE AB&M Sec. 6, Blk. B-4.	3281	Pennsylvanian 6050 or 6500.	8200	2-15-42
		COCHRAN COUNTY				
C-1	1	Humble Oil & Refg's Westheimer-Daube 1, 660 ft SNL and 1980 ft WEL Lab. 1, Leag. 146, Stonewall CSL.	3862	Granite 7356.	7414	11- 3-39
		CRANE COUNTY				
E-11	1	Gulf Oil's Dawson 1-A, C S½ of W¼ H&TC 10, Blk. 6.	2348	Simpson 5160; Ellenburger 5305.	5502	12-23-42
D-10	2	Gulf Oil's W. A. Estes 1, near C NW SW PSL 2, Blk. B-28 (Pb).	2529	Ellenburger 7591.	7777	6-18-43
D-10	3	Gulf Oil's McKnight 3, 1533 ft from N and 1517 ft from E lines PSL 9, Blk. B-21	2693	Simpson 6079; Ellenburger 6164.	6278	1-27-38
D-10	4	Gulf Oil's McKnight 4, C NE SE PSL 3, Blk. B-21.	2701	Simpson 6160; Ellenburger 6543.	6558	9- 8-38
D-10	5	Gulf Oil's McKnight 5, C SE PSL 1, Blk. B-21.	2686	Simpson 6430.	7614	7-30-40
D-10	6	Gulf Oil et al's Tubb 16, near C SW NW PSL 8, Blk. B-27.	2538	Simpson 5832; Ellenburger 6078.	6114	4-16-39
D-10	7	Gulf Oil's Tubb 6-A, 1980 ft SNL & 2926 ft EWL PSL 20, Blk. B-27.	2539	Simpson 5760; Ellenburger 5857.	5887	11-20-41
E-10	8	Gulf Oil's University 1-F, NW SE SE Sec. 22, Blk. 31.	2579	Pennsylvanian 7230; Mississippian 8050; Devonian 8187; Silurian 9290; Montoya 9475; Simpson 9630; Ellenburger 10628.	10659	6- 4-41
D-10	9	Gulf Oil's Waddell et al 6, C NE SW PSL 4, Blk. B-27.	2549	Simpson 5820; Ellenburger 6071.	6126	12-14-37
D-10	10	Gulf Oil's Waddell et al 8, C NW NE PSL 4, Blk. B-27.	2561	Simpson 5843; Ellenburger 6054.	6116	7-28-38
D-11	11	Gulf Oil's Waddell et al 39, C N½ of N¼ H&TC 18, Blk. 3 (Pb).	2466	Ellenburger 5664.	5701	4-30-42
D-10	12	Humble Oil & Refg's Tubb 50-X, 2200 ft SNL & 440 ft EWL PSL 18, Blk. B-32 (Pb).	2577	Ellenburger 5833.	5841	4- 7-41
D-10	13	Humble Oil & Refg's Tubb 2-B-X, 1980 ft NSL and 3300 ft WEL PSL 19, Blk. B-32 (Pb).	2553	Ellenburger 5775.	5788	12-14-41
D-10	14	Loffland Bros' Tubb-Gulf 3, NW NW NW PSL 9, Blk. B-27.	2540	Simpson 5791; Ellenburger 5802; Granite 7115.	7158	10-12-37
D-11	15	John I. Moore et al's Barnsley 1, C SW PSL 43, Blk. B-32.	2472	Detrital 5715; Simpson 6268.	6829	3-24-37
D-10	16	Magnolia Pet's Lea 21, C SE NW PSL 16, Blk. B-32 (Pb).	2602	Detrital 6160; Simpson 6180; Waddell 6210; Ellenburger 6460.	6518	7-27-43
D-11	17	Magnolia Pet's Tucker 1, 660 ft NE & NW of E corner Sec. 20, but in H&TC 19, Blk. 3.	2452	Detrital 5325; Montoya 5365; Simpson 5560; Tulip Creek 5915; McKee 6211; Waddell 6626; Ellenburger 6950.	7204	1-14-43
D-11	18	Shell Oil's Barnsley 1, 439 ft from N & SE lines PSL 30, Blk. B-27 (Pb).	2457	Ellenburger 5627.	5667	1-26-42
D-10	19	Sinclair Prairie Oil's Tubb Unit 2, NW NW SW PSL 3, Blk. B-27.	2552	Simpson 5841; Ellenburger 6186.	6391	10-23-37
D-10	20	Sinclair Prairie Oil's Tubb Unit 3, SW SW SW PSL 3, Blk. B-27.	2544	Simpson 5837; Ellenburger 6142.	6167	5- 7-39
E-12	21	Skelly Oil's Richardson 1, 7190 ft from NE and 660 ft from SE lines H&TC 5, Blk. 31.	2341	Detrital 4870; Simpson 4897; Ellenburger 5465.	5743	10-28-42
D-11	22	Standard Oil of Texas' Barnsley 1, C SE SE PSL 27, Blk. B-27.	2459	Detrital 5605; Simpson (absent); Ellenburger 5701.	5845	12-30-41

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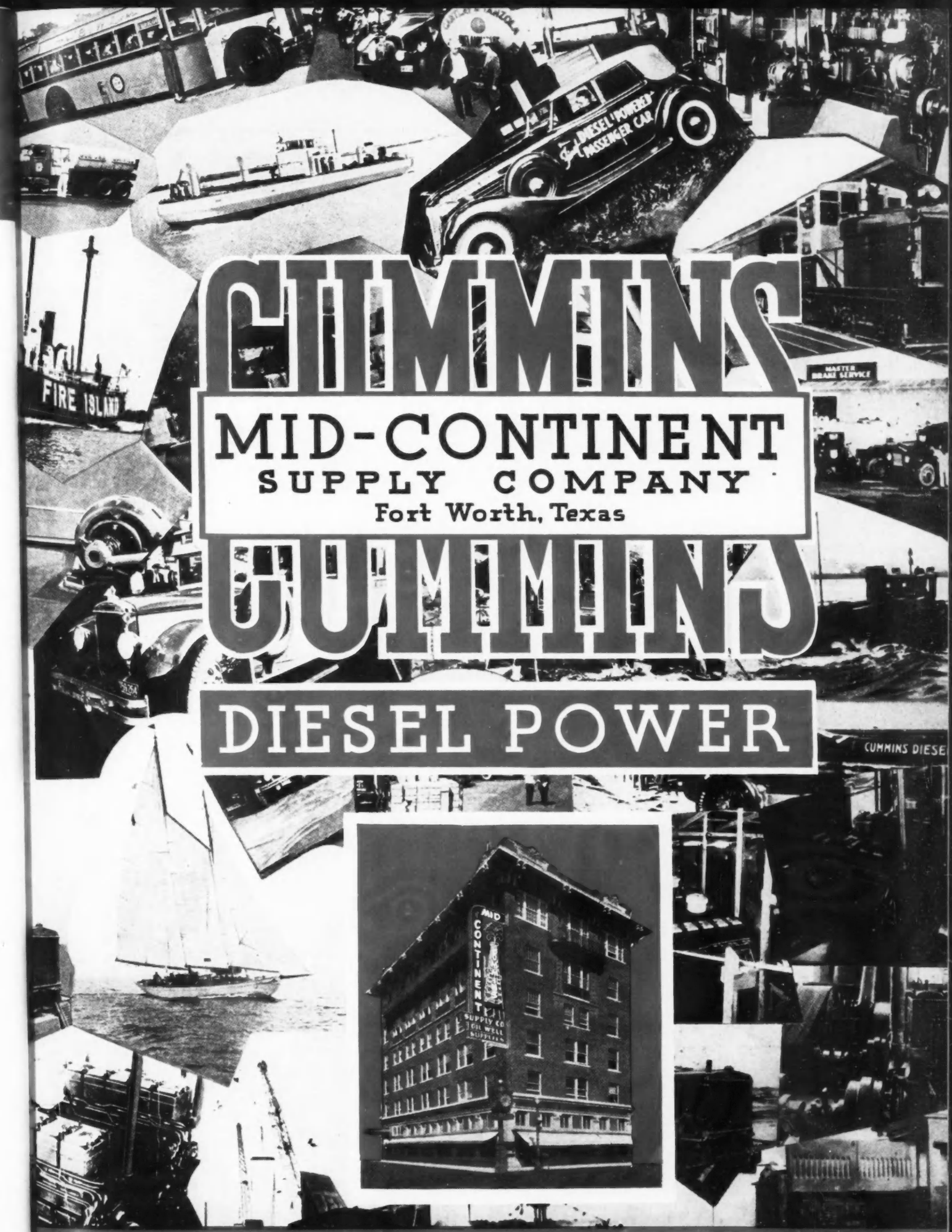

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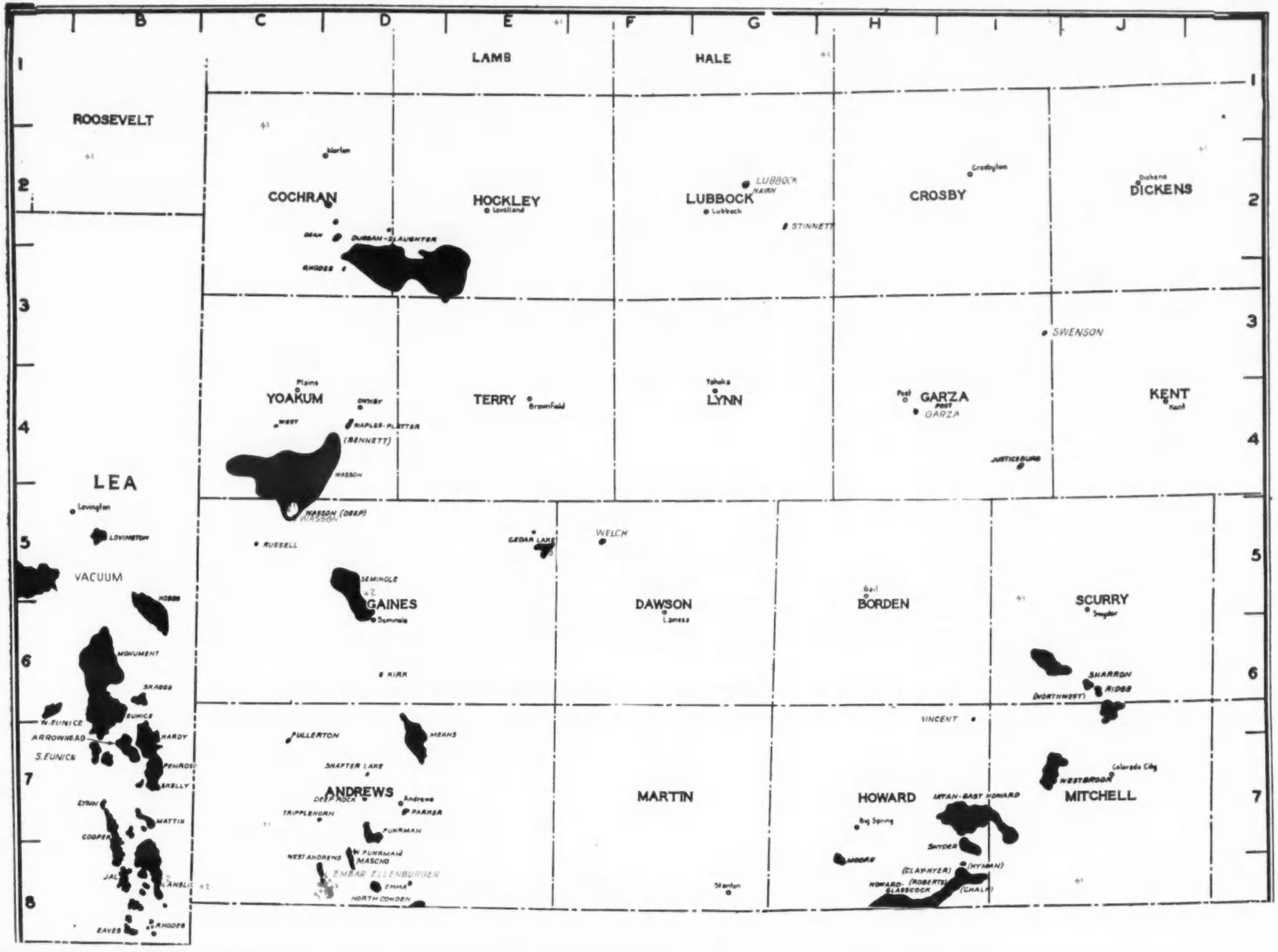
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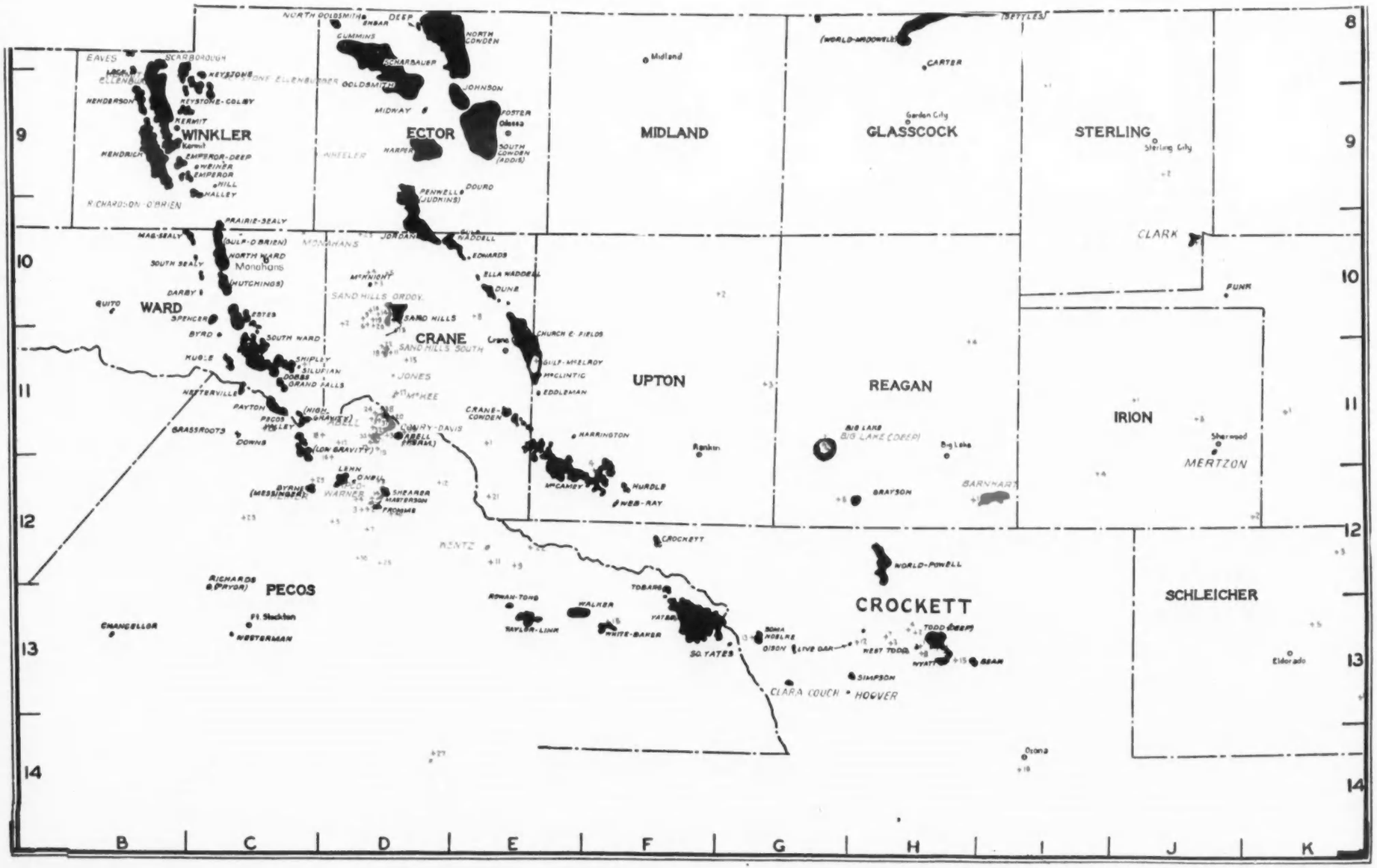
RUSSELL
CEDAR LAKE
WELCH
VACUUM
HOBBS
SEMINOLE
GAINES
Seminole
DAWSON
Lamesa
Gail
BORDEN
SCURRY
Snyder
MONUMENT
SKAGGS
SHARRON
(NORTHWEST)
RIDGE
EUNICE
N. EUNICE
ARROWHEAD
HARDY
S. EUNICE
PENROSE
SKELLY
KIRK
FULLERTON
MEANS
SHAFTER LAKE
ANDREWS
DEEP ROCK
Andrews
TRIPPLEHORN
PARKER
FUHRMAN
W. FUHRMAN
MASCHO
WEST ANDREWS
EMBAR-ELLENBURGER
EMMA
NORTH CONDEN
VINCENT
Colorado City
WESTBROOK
MITCHELL
LYNN
MATTIX
COOPER
JAL
LANGLIE
EAVES
MARTIN
Stanton
HOWARD
MIDAN-EAST HOWARD
Big Spring
SNYDER
MOORE
(CLAYTYER)
(HYMAN)
HOWARD-GLASSCOCK
(ROBERTS)
(CHALK)



West Texas-New Mexico Permian Basin

Ordovician (deep) fields and dry holes carried below Permian formation shown in red. Shallow producing fields shown in black. Numbers on deep dry holes refer to indicated well in accompanying tables that give geological data on each test.

—Map drawn by Southwestern Mapping Co., Fort Worth

MID-CONTINENT SUPPLY COMPANY

West Texas Ordovician Failures—Continued

Map Coordinate	No. on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		CROCKETT COUNTY				
H-13	1	Amerada Pet et al's Todd 1-A, C SW SE GC&SF 25, Blk. WX (Pb).	2520	Crinoidal 5562; Simpson 5970; Ellenburger 6144.	6400	7-18-41
H-13	2	Amerada Pet et al's Todd 1-B, C SW SW GC&SF 26, Blk. WX (Pb).	2512	Crinoidal 6050; Simpson 6090; Ellenburger 6202.	6300	9-30-41
H-13	3	Amerada Pet. et al's Todd 1-C, C SW SW GC&SF 15, Blk. 10 (Pb).	2430	Crinoidal 6436; Simpson 6645; Ellenburger 6975.	7143	9-30-41
H-13	4	Amerada Pet. et al's Todd 1-D, C SE SE GC&SF 12, Blk. 10.	2467	Crinoidal 6060; Simpson 5984; Ellenburger 6279.	6367	11-17-41
.....	..	Amerada Pet. et al's Todd 2-F, C NW SW GC&SF 25, Blk. WX.	2507	Crinoidal 6050; Simpson 6110; Ellenburger 6282.	6305	2- 3-42
H-13	6	Amerada Pet. et al's Todd 1-G, C SE SE GC&SF 15, Blk. WX.	2377	Crinoidal 6295; Simpson 6548; Ellenburger 6792.	6890	2- 1-42
H-13	7	Amerada Pet. et al's Todd 1-H, C SW SW GC&SF 16, Blk. 10.	2411	Crinoidal 6360; Simpson 6632; Ellenburger 6930.	7078	3-22-42
H-13	8	Continental Oil et al's Todd 1-B, C S½ NE SW GC&SF 30, Blk. WX.	2507	Crinoidal 5950; Simpson 6035; Ellenburger 6256.	7010	1-29-40
.....	..	Continental Oil et al's Todd 2-B, C NE SW GC&SF 29, Blk. WX (Pb).	2475	Crinoidal 5590; Simpson 5690.	5691½	4- 3-40
I-14	10	Humble Oil & Refg's Ozona-Barnhart Trap Co. 1, 2226 ft SNL and 1180 ft WEL GC&SF 4, Blk MN.	2366	Simpson 8360; Ellenburger 8565.	8719	6- 5-39
.....	..	Moore Bros' Perner 1, C NW I&GN Ry. 37, Blk. 2.	2560	Pennsylvania (Strawn) 8750; Devonian 8850; Montoya (?) 9105.	9105	2- 3-38
H-13	12	Moore Bros.-Olson Oil's Todd-Amerada 1, C SW SW E.L. Ry. 16, Blk. YZ.	2550	Crinoidal 6790; Detrital 7060; Simpson 7180; Ellenburger 7646.	7903	6-20-43
G-13	13	Moore Exploration-Olson Oil's Halff 2-C, 467 ft NSL and 1638 ft WEL I&GN 68, Blk. 1.	2316	Detrital (1st) 5120; Pennsylvanian 5780; Crinoidal 6270; Detrital (2nd) 6590; Ellenburger 6740.	6977	2-24-42
H-13	14	Stanolind Oil & Gas Unit's Todd 1, C NE GC&SF 67, Blk. UV.	2660	Crinoidal 6994; Simpson 7006; Ellenburger 7247. ■	8041	3- -33
H-13	15	Superior Oil (Cal)-Unit's Todd 1, C SE NE GC&SF 55, Blk. UV.	2537	Simpson 7131; Ellenburger 7424.	7948	8- -37
		CROSBY COUNTY				
I-3	1	Gulf Oil's Swenson 1-C, C NW H&GN 95, Blk. 2.	2475	Mississippi 8050; Ellenburger 8307.	8414	11-21-39
		CULBERSON COUNTY				
		Anderson-Prichard's Borders 1, 1255 ft SNL and 2305 ft EWL PSL 34, Blk. 69.	4565	Pennsylvanian 3925 or 4219.	5001	3-19-36
		DICKENS COUNTY				
K-2	1	Humble Oil & Refg's Matador L&C Co. 1-A, C SW NE Sec. 26, Blk. 1, Shock-Arnold Sur.	2476	Pennsylvanian (Strawn) 6780.	7053	7-12-39
		FISHER COUNTY				
K-5	1	Cranfill-Reynolds Co's George 1, 440 ft SNL and 330 ft WEL BBB&C Sec. 200, Blk. 1.	1789	Ellenburger 6054	6494	1- 4-33
	..	General Crude Oil's Flannigan 12, 2640 SNL and 1320 EWL BBB&C Sec. 200, Blk. 1.	1793	Ellenburger 6094; Cambrian 6410.	6746	6-11-41
	..	Shell Oil's Vaughn 1, 467 ft SNL and 1787 ft EWL H&TC 205, Blk. 3.	2115	Ellenburger 6799.	6821	11-26-41
		GAINES COUNTY				
D-5	2	Amerada Pet's Robertson 6, C NW SE W.T. Ry. 196, Blk. G.	3334	Pennsylvanian.	9312	8-30-43
C-5	4	Amon G. Carter's Wasson 4-D, 2200 ft out SEc PSL 50, Blk. AX, (Pb).	3564	Pennsylvanian (Cisco) 8900; Devonian 9980; Ellenburger 10545.	11108	12-20-41
E-5	3	Stanolind O & G Co's American Warehouse Co. 15, SE NW SE D&W 5, Blk. H.	3033	Pennsylvanian.	11122	Drilling
		GARZA COUNTY				
I-3	1	Gulf Oil's Swenson 1-B, C NW H&GN Ry. 25, Blk. 2.	2274	Ellenburger 7888; Granite 8085.	8104	11-[illegible]9-38
		GLASSCOCK COUNTY				
H-8	1	John I. Moore-Loffland Bros-Continental et al's McDowell 1, C SE NE T&P 22, Blk. 34, T-2-S.	2534	Pennsylvanian (Crinoidal) 9471; Solid L. 10200; Ellenburger 10470.	10906	2-23-36
		TOM GREEN COUNTY				
K-11	1	Humble Oil & Refg's Lewis-Wardlaw 1, 2080 ft NSL and 660 ft WEL H&TC Ry. 5, Blk. 17.	2142	Ellenburger 6989.	7586	4-21-43
L-11	2	Southern Cross Oil's Upton 1, 800 ft NSL and 1320 ft EWL AB&M Sec. 20, Blk. A.	2378	Pennsylvanian (Cisco) 2322; Canyon 3475; Strawn 4576; Bend 5064; Ellenburger 5494.	5637	8- 2-39
		HALE COUNTY				
H-1	1	Amerada Pet's Kurfees 1, C NW NW H&OB Ry. 6, Blk. N.	3308	Pennsylvanian.	8120	Drilling
.....	..	Humble-Stanolind-Standard of Texas' Byrd 1, C SE NE T.T.Ry. 17, Blk. K.	3251	Pennsylvanian (Canyon) 6150; Strawn 6550; Mississippian 6605; Granite 6745.	6760	6-25-41

■ CONTINUED ON PAGE 70

West Texas Ordovician Failures—Continued

Map Coordinate	No. on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		HUDSPETH COUNTY				
.....	..	California Co's University-Theisen 1, 3821 ft NSL and 2554 ft EWL Sec. 19, Blk. E, University Lands Sur.	5109	Mississippi 1727; Devonian 2105; Silurian 2163; Montoya 2817; Simpson (absent); Ellenburger 3424; Cambrian 4390; Pre-Cambrian 4725.	4848	7-30-30
		IRION COUNTY				
J-11	1	Benedum-Trees-M. E. Davis' Sugg 1, 1560 ft NSL and 925 ft EWL H&TC 3081, Blk. 28.	2355	Ellenburger 8249.	8287	9-30-32
J-12	2	Dixie Oil-Stanolind Oil & Gas' Williams 1, 1330 ft NSL and 1320 ft WEL T.T.Ry. Sec. 1196.	2544	Pennsylvanian (Cisco) 6770; Pennsylvanian (Strawn) 7200.	7425	10-15-32
J-11	3	Kingwood Oil's J. D. Sugg 1, SE NE SE H&TC 19, Blk. 1.	2334	Pennsylvanian (Strawn) 7600; Ellenburger 7770.	7818	7-12-30
I-12	4	P. H. Williams et al's Ash Bros. 1, C NW Sec. 20, Washington Co. Ry. Sur.	2726	Pennsylvanian 8767; Ellenburger 8842.	8900	3- 1-30
		KING COUNTY				
M-3	1	Mid-Continent Pet's Burnett 1, 1655 ft NSL and 311 ft WEL H&TC Ry. 16, Blk. F.	1654	Mississippi 5852; Ellenburger 6135.	6180	5-27-42
		LAMB COUNTY				
E-1	1	Stanolind Oil & Gas' Hopping 1, 1980 ft EWL and 660 ft NSL Sec. 25, Blk. T, T. A. Thompson Sur.	3561	Pennsylvanian 6720; Mississippi 9060; Ellenburger 9456; Metamorphic (slate) 9600.	9624	7- 8-42
		MENARD COUNTY				
.....	..	C. A. Clements et al's Murchison 1, 330 ft out SWc Sec. 80, Boedecker Sur.	2073	Ellenburger 1268.	1298	3-13-38
.....	..	Al G. Talbot et al's Wilkinson 1, C SE SE Sec. 55, J. H. Gibson Sur.	2178	Ellenburger 3300.	3612	3-31-43
.....	..	Wilcox Oil & Gas-Titan Oil's Murchison 1, SW SW SW Sec. 158, A-1840.	2190	Pennsylvanian (Strawn) 1645; Detrital 2010; Ellenburger 2078.	3507	6-10-36
		MITCHELL COUNTY				
J-8	1	Humble Oil & Refg's Ellwood 1, C W½ of E¼ S.P. Ry. 49, Blk. 16.	2235	Pennsylvania (Cisco) 5780; Strawn 7660; Detrital 7728; Ellenburger 7818.	8002	11-20-41
		MOTLEY COUNTY				
.....	..	Humble Oil & Refg's L&C Co. 1-B, 330 ft WEL and 7500 ft SNL Blanco County SL Sur.	2662	Granite 8601.	8604	4-26-40
.....	..	Humble Oil & Refg's Matador L&C Co. 1-C, C SE SE GB&CNG Ry. Sec. 29, Blk. JB.	2199	Pennsylvanian.	7430	12-18-40
.....	..	Humble Oil & Refg's Matador L&C Co. 1-D, 660 ft WEL and 3300 ft SNL Sec. 127, J. H. Gibson Sur.	2365	Granite 6262.	6269	10-31-41
		NOLAN COUNTY				
K-6	1	Plymouth Oil's McClure 1, SW NE NW T&P Ry. 49, Blk. 23.	2396	Pennsylvanian (Palo Pinto) 5810; Ellenburger 6965; Cambrian 7435.	7453	1- 6-40
		PECOS COUNTY				
D-11	1	Geo. T. Abell et al's Eaton 1-B, 1650 ft from NE and 990 ft from SE lines H&TC 5, Blk. 3.	2393	Simpson 4895; Tulip Creek 5060; Waddell 5833.	5873	5-26-42
D-12	2	Anderson-Prichard Oil's Boren 2, 659 ft NSL and 660 ft WEL Sec. 4, Blk. 605, L. Merchant Sur.	2471	Ellenburger 4737; Granite 4790.	4858	11-25-41
D-12	3	Anderson-Prichard Oil's Boren 3, 659 ft NSL and 1980 ft WEL Sec. 4, Blk. 605, L. Merchant Sur.	2468	Detrital 4725; Ellenburger 4740; Granite 4890.	4956	12- 1-41
D-12	4	Anderson-Prichard Oil's Bowen-Humble 1, C N½ E¼ H&GN 60, Blk. 10.	2483	Detrital 4890; Ellenburger 4917.	5200	2-15-42
D-12	5	Anderson-Prichard Oil's Gregg-Ogilvie 1, C NW NW T. & St. L. Ry. 30, Blk. 140.	2559	Detrital 5230; Simpson 5570; McKee 6370.	6652	6- 8-42
D-12	6	Anderson-Prichard Oil's Masterson 2, C N¼ N¼ H&GN Ry. 104, Blk. 10.	2430	Detrital 4515; Granite 4519.	4740	11- 6-39
D-12	7	Anderson-Prichard Oil's Masterson-Humble 1, C SW SW T. & St. L. Ry. 24, Blk. 140.	2553	Detrital 4470; Cambrian 4500; Pre-Cambrian 4530; Granite 4560.	4565½	2-10-43
D-12	8	Anderson-Prichard Oil-Magnolia Pet's Powell 1, C W½ of W¼ H&GN 98, Blk. 10.	2427	Detrital 4725; Simpson 4895; Waddell 4905; Ellenburger 5055.	5318	4-19-42
E-12	9	M. D. Bryant et al's McDonald 1, 1100 ft SNL and 2490 ft WEL H&GN 46, Blk. 12.	2498	Detrital 4775; Ellenburger 5250.	5666	9-15-42
.....	..	Childress Royalty's Masterson-I.T.I.O. 1-D, C W½ E¼ H&GN 104, Blk. 10.	2430	Detrital 4495; Granite 4515.	4605	11- 6-39
E-12	11	Gulf Oil-L. H. Wentz's Millar 1, 467 ft out of SWc H&GN 39, Blk. 11.	2577	Detrital 4496; Granite 4532.	4538	9- 2-41
D-12	12	Gulf Oil's Shearer 1, C W½ of S½ H&GN 135, Blk. 10.	2496	Ellenburger 4093.	4150	4-21-42
.....	..	Gulf Oil's Girvin 1, C NW SW H&GN 60, Blk. 11.	2516	Ellenburger 4434; Granite-Wash 4528; Granite 4535.	4537	6-21-43
D-11	13	Humble Oil & Refg's Parker 2, 1972 ft from NW and 520 ft from NE lines H&TC 6, Blk. 3.	2396	Detrital 4880; Simpson 4960; Tulip 4990; McKee 5332; Waddell 5851.	5900	2-27-43
D-12	14	Humble Oil & Refg's Shearer 2, C S½ S½ H&GN 99, Blk 10.	2437	Detrital 4660; Ellenburger 4710.	5396	2- 2-42
F-13	15	Humble Oil & Refg's White-Baker 1, C NE¼ T.C. Ry. 44, Blk. Z.	2715	Pennsylvanian 6360; Simpson 8040; Ellenburger 9385.	9811	6-25-34

■ CONTINUED ON PAGE 72

SEISMIC

SUBSURFACE SURVEYS

SEISMIC EXPLORATIONS, INCORPORATED
HOUSTON, TEXAS

West Texas Ordovician Failures—Continued

Map Coordinate	No. on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		PECOS COUNTY—Continued				
D-12	16	Humble Oil & Refg's Young 1, C N½ W¼ H&GN 33, Blk. 10.	2455	Detrital 5185; Simpson 5624.	7430	5- 3-40
D-11	17	Magnolia Pet's Eaton-Abell 2, 493 ft out of E cor H&TC 23, Blk. 3.	2425	Detrital 5110; Ellenburger 5120.	5171	7-25-39
D-11	18	Magnolia Pet's Eaton 1-29, C N½ E½ S¼ H&TC 29, Blk. 3.	2430	Detrital 5410; Devonian 5465; Silurian 5775; Montoya 5990; Simpson 6375; Tulip Creek 6710; McKee 7169; Waddell 7659; Ellenburger 8110.	8315	4-17-43
D-11	19	Magnolia Pet's Loar-State 1, 330 ft out of N corner H&TC 2, Blk. 3.	2393	Simpson 4945; Tulip Creek 5145; Waddell 5854; Ellenburger 6282.	6483	4-24-42
D-11	20	Magnolia Pet's Lutz 1, C of Lot 2, H&GN 27, Blk. 9 (Pb).	2377	Simpson 4955; Tulip Creek 5025; McKee 5334; Waddell 5841.	5873	4-12-42
.....	..	Magnolia Pet-Tex-Mex Pet's McKee 1-A, 2109 ft NSL and 660 ft EWL H&GN 24, Blk. 9.	2385	Simpson 4775; Tulip Creek 4950; McKee 5271; Ellenburger 6102.	6267	8-25-38
E-12	22	Magnolia Pet's Price 1, 467 ft out SEc N½ H&GN 4, Blk. 12.	2313	Pennsylvanian 4735.	5506	2-28-42
D-11	24	Magnolia-Stanolind Oil & Gas' Sharp-State 1, near C Lot 11, H&GN Ry. 22, Blk 9.	2396	Simpson 4960; Tulip Creek 5165; McKee 5430.	5932	3-14-42
D-12	25	Bryce McCandless et al's University 1, C SW SE Sec. 20, Blk. 26.	2629	Detrital 4720; Granite Wash 4850; Granite 5420.	5514	5- 5-43
.....	..	Phillips Pet's Hall-Abell 1, 330 ft out SWc Lot 6, H&GN 25, Blk. 9.	2392	Simpson 4965; Tulip 4895; McKee 5190; Waddell 5675.	5693	9-19-41
D-14	27	Phillips Pet's Price 1, C SE NW T.C. Ry. 11, Blk. 101.	3257		12,580	Drilling
C-11	28	Plymouth Oil's Levy 1, 466 ft out SWc H&GN 104, Blk. 8.	2473	Devonian 6095.	6473	9- 4-40
C-12	29	J. E. Redmond-J. L. Greene-Paul L. Davis' Iowa Realty 1, C E½ W¼ H&GN 29, Blk. 10.	2526	Detrital 5340; Simpson 5370.	6010	8-26-41
D-12	30	Roxana Pet-Kirby Pet's University 1, 2180 ft SNL and 1547 ft WEL Sec. 23, Blk. 26.	2620	Granite Wash 4635; Granite 4835.	5204	7-20-29
D-11	31	Sinclair Prairie Oil's Grove 1, 330 ft NSL and 990 ft WEL H&GN 26, Blk. 9.	2392	Simpson 4825; Tulip Creek 5105; McKee 5416; Ellenburger 6252.	6329	6-18-41
D-11	32	Sinclair Prairie Oil's Heierman 3, 330 ft out NEc H&TC 12, Blk. 3.	2394	Simpson 4908; Tulip Creek 5163; McKee 5456; Waddell 5953.	5999	3- 6-42
D-11	33	Sinclair Prairie Oil's Heierman 4, 1280 ft SNL and 330 ft WEL H&TC 12, Blk 3.	2393	Simpson 4807; Tulip Creek 5157; McKee 5444; Waddell 5924.	5992	3-27-42
F-13	34	Standard Oil of Texas' Smith-Douglas 1, C SE SE GC&SF 9, Blk 194.	2595	Pennsylvanian (Cisco) 6250; Canyon 6780; Strawn 7460; Simpson 7730; Tulip Creek 7850; McKee 7970; Waddell (not developed); Ellenburger 8732.	9114	8- 6-43
D-11	35	Stanolind Oil & Gas' Conry-Davis 1, C Lot 8, H&GN 31, Blk. 9 (Pb).	2376	Detrital 4815; Ellenburger 4825; Granite 5740.	5745	7-12-41
.....	..	Stanolind-Magnolia's Fogelman-Gerety 1, C Lot 4, H&GN 23, Blk. 9 (Pb).	2393	Simpson 4990; Tulip Creek 5155; McKee 5470; Waddell 5910; Ellenburger 6135.	6280	8- 4-42
D-11	37	Stanolind Oil & Gas & Anderson-Prichard Oil's Sharp-State 1, C Lot 12, H&GN 22, Blk. 9.	2396	Simpson 4930; Tulip Creek 5125; McKee 5479; Waddell 5961.	6000	7-12-42
D-11	38	Stanolind Oil & Gas-Superior of Calif's Thrapp-Walker 1, C Lot 3, H&GN 23, Blk. 9 (Pb).	2391	Simpson 5025; Tulip Creek 5045; McKee 5360; Waddell 5837.	5899	1-17-42
D-11	39	Stanolind Oil & Gas' Wagner 1-C, near C Lot 4, H&GN 31, Blk. 9.	2371	Detrital 4995; Ellenburger 5020.	5077	4- 2- 42
D-12	40	Superior Oil's (Tulsa) Cordova-Union 1, 467 ft from SW and 467 ft WEL Tr. 3, Pink Phelps Vacancy.	2517	Detrital 4670; Ellenburger 4715; Granite Wash 4750; Granite 4869.	4862	2-23-43
		REAGAN COUNTY				
I-12	1	Amerada Pet's University 1-R-M, C NW NE Sec. 6, Blk. 48.	2777	Base Black; Shale 9120; Ellenburger 9185.	9394	2-24-43
G-11	2	Big Lake Oil's University 20-C, 1243 ft NSL and 467 ft EWL Sec. 24, Blk. 9.	2673	Crinoidal 8395; Ellenburger 8535.	9385	8-18-42
G-11	3	Big Lake Oil's University 22-C, 392 ft NSL and 2032 ft WEL Sec. 24, Blk. 9 (Pb).	2674	Crinoidal 8285; Ellenburger 8410.	8714	
H-10	4	Humble Oil & Refg's Sawyer Cattle Co. 1-B, C W½ E½ NW T&P Ry. 13, Blk. 1.	2516	Pennsylvanian (Strawn) 9330; Ellenburger 9957.	9995	6- 3-43
G-12	5	Skelly Oil's University-Unit 1-D, C SW NW Sec. 33, Blk. 8 (Pb).	2891	Cisco (Penn.) 9174; Simpson 9400.	9967	4- 2-35
.....	..	Texon Oil & Land's University 9-B, C NE NE Sec. 39, Blk. 9.	2735	Pennsylvanian (Basal) 8542; Simpson (none); Ellenburger 8575.	8850	12-20-33
		RUNNELS COUNTY				
.....	..	Geo. Callihan-E. M. Wahlenmaier-Steve Currie's Rainwater 1, 660 ft SNL and 739 ft WEL of 250-ac tr, J. N. San Miguel Sur. 72.	1960	Pennsylvanian (Palo Pinto) 3265; Bend 4125; Ellenburger 4515.	4670	7-14-42
.....	..	Marland Production's Herring 1, NE NW NE E. T. Ry. Sec. 139.	1821	Ellenburger 4075.	4200	6-10-29
.....	..	Pawnee Royalty's David 1, 660 ft SNL and 1960 ft WEL Sec. 330, Blk. 64, H&TC-F. J. Ford Sur. (Pb)	1786	Pennsylvanian (Palo Pinto) 4465; Ellenburger 4570.	4735	2-21-43
		SCHLEICHER COUNTY				
K-13	1	Cooper Gas' Page 1-D, 1468 ft SNL and 1170 ft WEL GH&SA 39, Blk. L, (Pb).	2376	Pennsylvania (Cisco) 2225; Palo Pinto 4810; Strawn 5280; Detrital 6395; Ellenburger 6487.	7022	9- 1-42
L-12	2	Humble Oil & Refg's Honig 1, 2640 ft SNL and 2650 ft WEL GH&SA 38, Blk. M.	2276	Ellenburger 6170.	6472	1- 5-35
K-12	3	Geo. P. Livermore-E. M. Wahlenmaier's Thomson 1, 660 ft NSL and 3400 ft. WEL T.C. Ry. 75, Blk. TT.	2207	Pennsylvania (Strawn) 5920; Detrital 6560; Ellenburger 6610.	7021	12-31-42
L-13	4	Mangus Oil-J. D. Mesner-Kimberlin & W. C. Proctor's Judkins-Spencer 1, C SW Sec. 4, W. W. Russell-Hooper & Wade Sur. A-2209.	2209	Ellenburger 5902.	6527	4-29-37
K-13	5	Phillips Pet-Interstate Prod's Whitten 1, C NW T.C. Ry. Sec. 35, Blk. LL.	2333	Ellenburger (not reached).	6880	9-22-30
L-13	6	Textor Oil's Judkins-Spencer 1, C SW A&B Sec. 33, Blk. A.	2238	Pennsylvanian 2120; Ellenburger 5547.	6450	3-14-38

• CONTINUED ON PAGE 75

West Texas Ordovician Failures—Continued

Map Coordinate	No on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		SCURRY COUNTY				
I-5	1	Humble Oil & Refg's Newman 1, 1740 ft NSL and 2246 ft EWL H&TC 258, Blk. 97.	2501	Detrital 8168; Ellenburger 8175.	8336	1-17-43
		STERLING COUNTY				
-8	1	Col-Tex Refg. et al's Reed 1, C NW SW W&NW Ry. Sec. 8, Blk. 30.	2641	Ellenburger 9335.	9587	4- 3-43
J-9	2	Gulf Oil's Foster 1-C, C NW NW S.P. Ry. 28, Blk. 12.	2298	Ellenburger 8057.	8117	5-20-42
J-10	3	Ohio Oil's Clark 1, C NE SW GC&SF 6, Blk. A.	2249	Pennsylvanian (Bend) 7600; Ellenburger 7705.	8486	3-12-43
		STONEWALL COUNTY				
L-4	1	Shell Oil's Rutherford 1, SE SE NE H&TC 144, Blk. 1.	1760	Mississippi 6013; Ellenburger 6197.	6239	4-30-41
L-4	2	Shell Oil's Rutherford 2, SW SW NE H&TC 144, Blk. 1 (PB).	1787	Mississippi 5970; Ellenburger 6168.	6345	3-17-42
L-4	3	Shell Oil's Smith 1, NW NW SW H&TC 143, Blk. 1 (Pb).	1767	Mississippi 6005.	6065	8- 7-40
L-3	4	W. I. Southern, Inc-Stonewall Oil's Carlisle 1, near C E½ NW SW H&TC 293, Blk. D (Pb).	1790	Ellenburger 6540; Cambrian-Hickory 6725.	6728	4-25-40
		SUTTON COUNTY				
....	..	Fleetborn Oil-Mid Continent Pet's Paul Teas' Allison 1, SW SW SW GWT&P Ry. 49, Blk. A.	2316	Pennsylvanian (Bend) 3773; Ellenburger 4240.	4504	12-14-35
....	..	Ordovician Oil Co's Evans 1, NE NE NE Sec. 1, Blk. V-26, Lucy Stubblefield Sur.	2126	Pennsylvanian (Canyon) 2320; Strawn 2860; Bend 3315; Ellenburger 4085.	4188	2-16-38
....	..	S. B. Roberts-M. C. Moore's Allison 1, C NW NE GH&SA 44, Blk. K.	2364	Pennsylvanian (Palo Pinto) 3725; Strawn 4663; Detrital 5140; Ellenburger 5167.	5416	6-30-42
....	..	Paul Teas et al's Mower 1, C NE SW TW&NG Ry. 39, Blk. 5.	2344	Ellenburger 4520.	4930	5-20-35
		TERRELL COUNTY				
....	..	Ohio Oil-Transcontinental Oil's Goode 1, 2152 ft WEL and 330 ft NSL GC&SF 26, Blk. 161 (PB).	2405	Pennsylvanian (top unavailable)	9140	3- 8-37
		UPTON COUNTY				
E-11	1	Gulf Oil's McElroy 103, C NW SW CCSD&RGNG Ry. 197, Blk F (Pb).	2625	Pennsylvanian 7500; Mississippian chert 10167; Devonian 10182; Silurian 11156; Montoya 11346; Simpson 11510; Ellenburger 12391.	12786	5-25-35
F-10	2	Humble Oil & Refg's Pollock-Gulf 1, C NW E.L. Ry. 4, Blk. M.	2758	Pennsylvanian (Strawn) 10670; Bend 10880.	11144	11-21-35
G-11	3	Plymouth Oil's Alford 1, 467 ft from NE & SE lines Lot 2, Sec 50½, P. B. Scott Sur.	2669	Lower Pennsylvanian 9590; Devonian 10018.	10384	5- 9-42
....	..	Texas Pacific Coal & Oil's Lane 52-A, SW NE SE GC&SF Ry. 5, A-213.	2589	Devonian 6450.	6970	Drilling
		WARD COUNTY				
C-11	1	Gulf Oil's Wristen Bros. 5, 330 ft out E corner W¼ H&TC 18, Blk. 5 (Pb).	2501	Devonian 6330; Silurian 6930; Montoya 7100; Simpson 7375; Ellenburger 9002 (oil saturation).	9187	12-11-40

Southeastern New Mexico Ordovician Failures

Map Coordinate	No. on Map	COMPANY, WELL AND LOCATION	Elevation (Feet)	TOP OF PRE-PERMIAN MARKERS (Feet)	Total Depth (Feet)	Date Completed
		LEA COUNTY				
B-8	2	R. Olsen Oil-Atlantic Refg's Langlie 1, C SE SE 11-25s-37e (PB to Permian).	3133	Devonian 6990; Silurian 7545; Montoya 7825; Simpson 8250; Tulip Creek 8515; Ellenburger 9110; Granite 9555.	9592	
		ROOSEVELT COUNTY				
B-2	1	Shell Oil's Harwood 1, C S½ SE SE 27-7s-35e.	4200	Pennsylvanian 7661; Pre-Cambrian (granite and feldspar) 7954.	7957	4-29-39

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Permian Basin only area in United States not now producing at maximum efficient rate. The territory has been called on for materially larger production in recent months, but further boosts are certain to come in the future.

Industry Dependent on West Texas for More Production

By A. R. McTEE, Staff Writer

FOR a good many months eyes of the oil industry have been centered on West Texas as the area on which were pinned the hopes for larger output to meet rising consumption of petroleum, and now the region is being called upon to furnish greatly enlarged quantities. Of all areas in the state, the great district comprising the Permian Basin, most of which is in West Texas, has been known to have the greatest volume of shut-in production. The territory also has been looked upon as one of the most favorable for the finding of additional new sources of petroleum, and this belief has been proven by recent discoveries of prolific production in the Ordovician formations. As was pointed out in this publication of May 4, last year, the Basin, "centering upon West Texas and Southeastern New Mexico, has a greater number of proven undrilled locations than any other geological province in the United States."

Since the mid-20's, this district has consistently maintained a comfortable back-log of undrilled proven well sites, and the reserve of crude oil has kept at steady high level, with upward tendencies. This has been due largely to transportation outlet limitations. Now that the nation is in need of additional producing capacity, new pipe lines are to be constructed to the area. This will permit increased production, thus encouraging development of both proven and wildcat drilling sites.

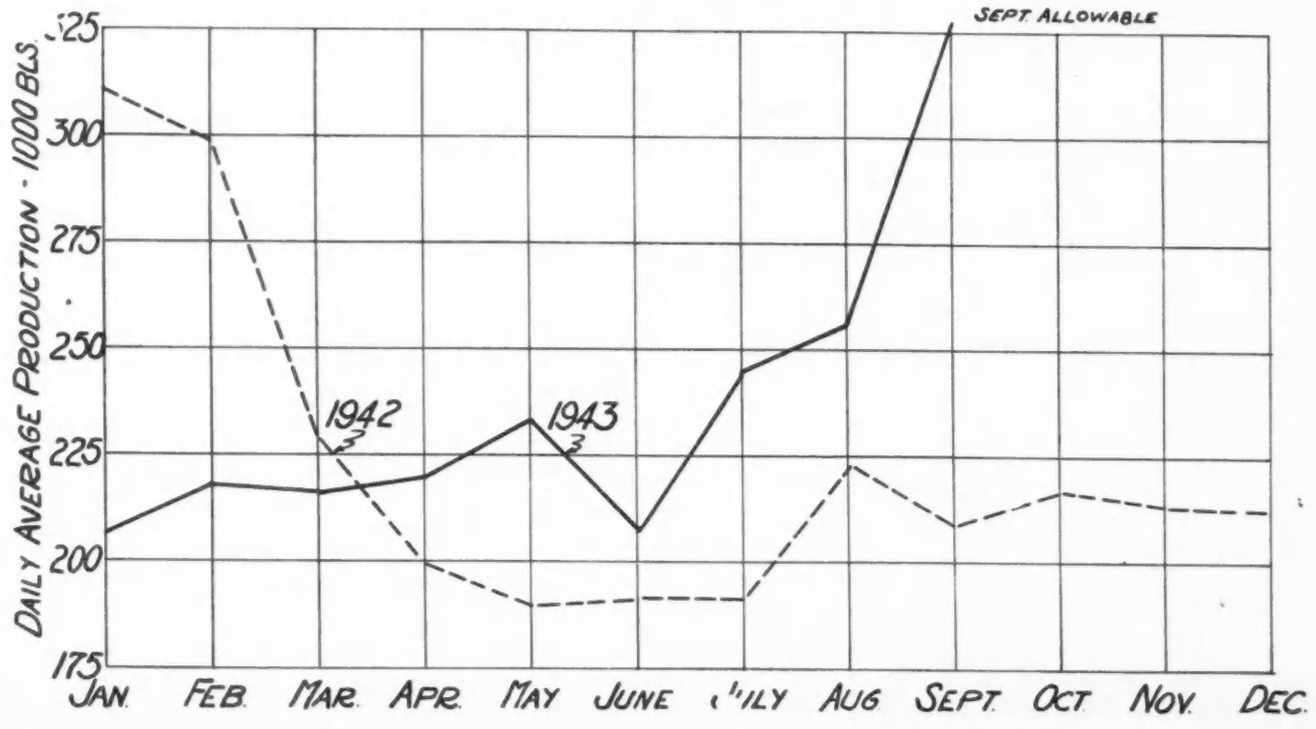
West Texas Production Trends

MONTH	Daily Average Production in Barrels	
	1943	1942
January	207,300	311,300
February	217,300	298,800
March	215,300	229,400
April	221,700	199,200
May	233,000	191,300
June	211,000	194,200
July	244,100	194,100
August	256,000	222,900
September	.....	209,100
October	.....	216,700
November	.....	213,400
December	.....	212,600

Production Rising

Production of West Texas fields has been the most severely curtailed of all regions in the United States, especially since the nation's entry into the war. With transportation a major problem of the industry, the available capacity was used to carry nearer-at-hand and more desirable types of crude oil.

The picture has changed, and the in-



dustry is calling upon West Texas for its supply of oil. With the state allowable for September pushed to its highest peak in history, 1,814,000 barrels of crude oil daily, the largest increase was assigned to West Texas. The increase called for 73,193 barrels of additional oil from the Permian Basin, giving the territory a daily allowable of 327,642 barrels for the month. The total increase in allowables for the state over August was 83,039 barrels, and 73,193 barrels of this amount was given to West Texas. This stresses the current importance of the territory. The most strategical point, of course, is that there is yet a sizeable potential to draw upon before the limit of efficient production has been reached. Thus West Texas production may be expected to increase further in the future.

In a recent statement issued by Beauford Jester, chairman of the Texas Railroad Commission, on the possibility of increase oil output from Texas, he highlighted the Permian Basin district by saying, "Of course the outstanding area is West Texas. The estimate there indicates that it could produce 250,552 barrels more per day." Speaking of the state as a whole, he also stressed that this is a decidedly conservative estimate.

Jester's assertion that testimony taken at a series of hearings indicated that West Texas could produce 250,000 barrels more, was made when the daily average output was 244,100 barrels. Thus the total maximum recovery from West Texas might be put at 500,000 barrels — provided there were ample transportation facilities to move the oil to markets. Today, West Texas is the only area in the United States that is not producing at its maximum efficient rate.

During 1942, daily average production in the district declined approximately 100,000 barrels for the 12 months, starting off in January with 311,300 barrels and dropping to 212,600 barrels by December. This year, the trend is reversed, with the curve rising sharply in recent months. In January, 1943, daily average output stood at 207,300 barrels. It rose slightly in following months, but a small drop in June again brought output down to just above 200,000 barrels per day. Since that time the territory has been assigned materially larger producing quotas. Output in August has climbed to 256,000 barrels per day, and a gain to 327,000 barrels is indicated by September allowables. Thus in three months the producing rate has jumped 100,000 barrels per day.

New Pipe Lines

In March, the district had unused pipe-line capacities of about 150,000 barrels. Since the anticipated daily average output for September would be only 112,300 barrels above the March output, there is still some extra transportation for West Texas oil, and additional facilities are to be provided.

Purchasers recently nominated increases in their take from the area, at proration hearings. Gulf Oil Corporation asked for an increase of 8500 barrels from the McElroy field. Ohio Oil Company wanted 18,000 barrels a day more from Yates, and this month, Humble Oil & Refininig Company will need 104,400 barrels daily from West Texas. During August, the latter took 36,800 barrels, thus its increase for September amounts to 63,850 barrels daily.

Humble Pipe Line Company will resume operation of the line from West Texas to its Ingleside (Corpus Christi) refinery, taking 55,000 barrels more daily through this line than was taken in August. Eventually, this crude will find its way into the Big-Inch line to the East.

Magnolia Pipe Line Company has increased the capacity of its West Texas 8-inch trunk line 2500 barrels daily, bringing total capacity to 26,000 barrels, through installation of a 13-mile, 8-inch loop near the Cisco station, Eastland County. This loop eliminates a bottleneck arising through extra wide spac-

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ing of stations. Also entry of this company into the Apco-Warner field, Pecos County, with a 12-mile, 4-inch pressure line and 6-mile gravity gathering system has been approved by PAW. Permian Basin Construction Company, Odessa, has the contract for this system which is to be in service about the middle of October.

Magnolia Pipe Line Company has made preliminary application to PAW for priorities on pipe and station equipment to build a line from its Midland terminal and tank farm to Corsicana, where connection could be made with its Beaumont-Mid-Continent multiple system. This proposed line would require 336 miles of pipe and three stations. It would afford an outlet for 42,000 barrels daily, and would parallel a looped 8-inch system that has been in service since December, 1927.

Should this line be built, it would free Magnolia Pipe Line Company's original line for the handling of sweet crude originating in the Basin, and probably have some capacity for other shippers. It is believed now that this quality of oil will be available in sufficient volume within a year to warrant a separate line from the district.

Humble Pipe Line Company has surveyed for a proposed 14-mile, 4-inch line to extend from the Barnhard field, largest producing area in West Texas without a line connection, to its Kemper terminal. The 21 wells in this 9100-foot producing area have relied upon tank trucks for an outlet since August, 1941.

However, the most important transportation unit contemplated for West Texas, is the line to be built by Stanolind Pipe Line Company from Hockley County, to Drumright, Oklahoma. The project has been approved by WPB and surveying is now in progress. It is to be 383-miles of 16-inch, thus connecting West Texas with several Mid-Continent systems. The company proposes to install 18 80,000-barrel, second-hand tanks, near Sundown and along the route. Field tanks will be filled as they become available, thus accumulating a backlog for the system. The line will have a capacity of 54,000 barrels daily. Due to the drop in elevation between the origin and termination of the line, only one pump station, located at Slaughter, will handle the flow through the line. When needed, capacity of the system could be stepped up to 116,000 barrels daily by addition of intermediate stations.

Construction of this line will start in October and completion is set for March of next year. Stanolind Pipe Line Company is building the line and is its sole owner.

Commenting on the accessibility of West Texas fields to transportation outlets, Jester anticipated considerable new pipe-line construction when he said, "In the past, when the demand for oil was sufficient, pipe lines have been built to new fields when these were discovered. I think this will be true, especially in West Texas, because there is where the largest reserve is available immediately, and does not have to wait to be discovered. It seems to me that it would be much easier to build pipe lines and convert refinery operations to take care of West Texas crude than it would be to prospect and drill enough wells to supply 250,000 barrels a day, the amount of additional oil that is available in West Texas now."

These facts bring West Texas into the national oil picture and give that district the spotlight as a crucial factor in the oil situation. For the first time, definite figures have been given out on military consumption of gasoline. On September 2, when PAW Administrator Ickes said that this total is now 600,000 barrels of gasoline daily, he gave the country the first black-and-white facts. What the grand total consumption of all oil, including fuel oil for the Navy is, can only be surmised, but is known to exceed 1,000,000 barrels. However, it is certain that present demand will be stepped up as the tempo of military activity gains momentum which seems likely to happen momentarily. When it is realized that Texas is one of the few localities left in the nation where crude oil production is still below the efficient maximum, and at the same time when the greater part of the Texas potential is due to come from West Texas, it can be seen that West Texas has really arrived. Prophetically speaking, it may be that the destiny of our nation is due to swing on just what this oil-producing district can do. Explored to its fullest, the daily average yield might be considerably beyond the figures set, and should the military requirements skyrocket, as well they may, Texas might be called on for still greater output than even the most liberal have calculated could be had.

New production in the Basin during this year has been largely confined to deep fields. Ordovician zones enabled the area to attain prominent position as contributor of new crude reserves during the first six months of 1943, with three major strikes in Winkler County. The district accounted for seven oil areas and one gas, and the proving of a deep pay in the Keystone field.

Trading and exploration was stimulated by the opening of the Kermit-Ellenburger, Keystone-Ellenburger and Wheeler-Ellenburger areas, with pay sections considered capable of averaging 1,000,000 barrels of oil per well. Activity extended along a wide trend from southeastern Pecos County thence north across Ward, Winkler, Andrews and Gaines counties.

Most of this development has been in Ordovician zones and these discoveries undoubtedly will lead to progressively increasing exploratory work through the district. Participation is confined to comparatively financially strong operators because of the cost of such deep tests, the average cost of wells in the new Wheeler Field, Winkler County, for example, being about $200,000 each.

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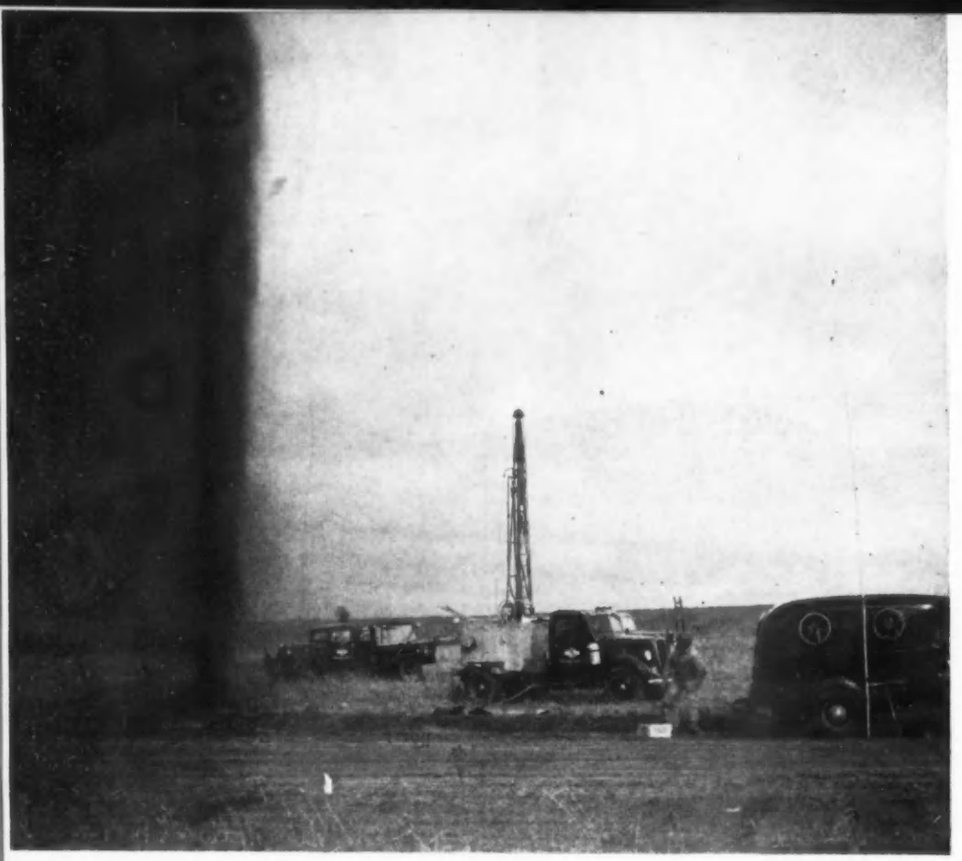

Some survey crews have recently returned to the use of refraction seismograph for detailing areas blanketed by unconsolidated surface beds such as prevail in areas of West Texas. While the shots use less explosive than in earlier days, the refracted wave is giving detailed information.

Some Approaches to Development Of Better Oil Finding Tools

By FRANK B. TAYLOR, Staff Writer

SO FAR as reserves are concerned, the position of the petroleum industry pivots upon the exploration department. Without continued successes in the never-ceasing effort to find new fields, present and predictable future demands will tax the industry beyond its power to produce. This is basic regardless of area of operation or exploratory method used.

Oil-finding tools of today while of a high degree of excellence, are admittedly not perfect. Also, they are generally expensive to operate, and because of this their present use is being hampered seriously by today's oil price. The natural limitations of the industry's instruments for finding oil or structural conditions favorable to the accumulation of oil are approaching the "N" point, but this fact is being overly stressed by some in an attempt to explain decreasing new reserves. The suggestion that the industry's exploratory equipment is becoming less efficient is not an accurate statement. Actually, improvements have rendered exploratory tools more sensitive, and proof of this lies in the fact that improved equipment is being used over the areas previously explored with the same method, and in many instances new oil is being found that was not indicated in the first surveys. What is actually needed is radically new means of prospecting; means that will detect or isolate accumulations not at all discernible with any type of means now in use.

The problem of keeping reserves well ahead of demand has always been paramount. Now, when war necessities have limited both materials and manpower, increased consumption, and caused price to be held below normal in defiance of all the laws of supply and demand, the reserve position of the industry is seriously aggravated.

These facts, plus the inevitable conclusion that oil-finding will be the industry's number one problem for years to come, has prompted a general re-examination of all oil-prospecting methods. In some organizations where departmental personnel has been decreased within the past two years, the exploration departments have reversed the trend by an increase of their staffs.

No line of research is being ignored. Chemical, electrical, magnetic, seismic, gravitational, radiation—all are being subjected to intensive research in an effort to improve or to find variant applications. In addition to this work, there is a vast amount of original research being directed toward prospective oil-finding tools or methods that have not even been named and that bear only a laboratory number. For the most part this work is being done in strict secrecy. Every effort is being made to overlook no function that suggests even remotely an adaption to the problem of finding oil.

Improvements

Unless some of the present research that as yet is still in the embryo stage, develops into applicable methods of marked efficiency, the greatest contributions of present work will be toward improvement of oil-finding tools already in use. In considering improvements as compared with new means it is very difficult to fix an exact line of differentiation between the two. This is the more natural when it is acknowledged that the majority of even those methods classified as "new" are in reality the outgrowth of methods previously suggested or in use.

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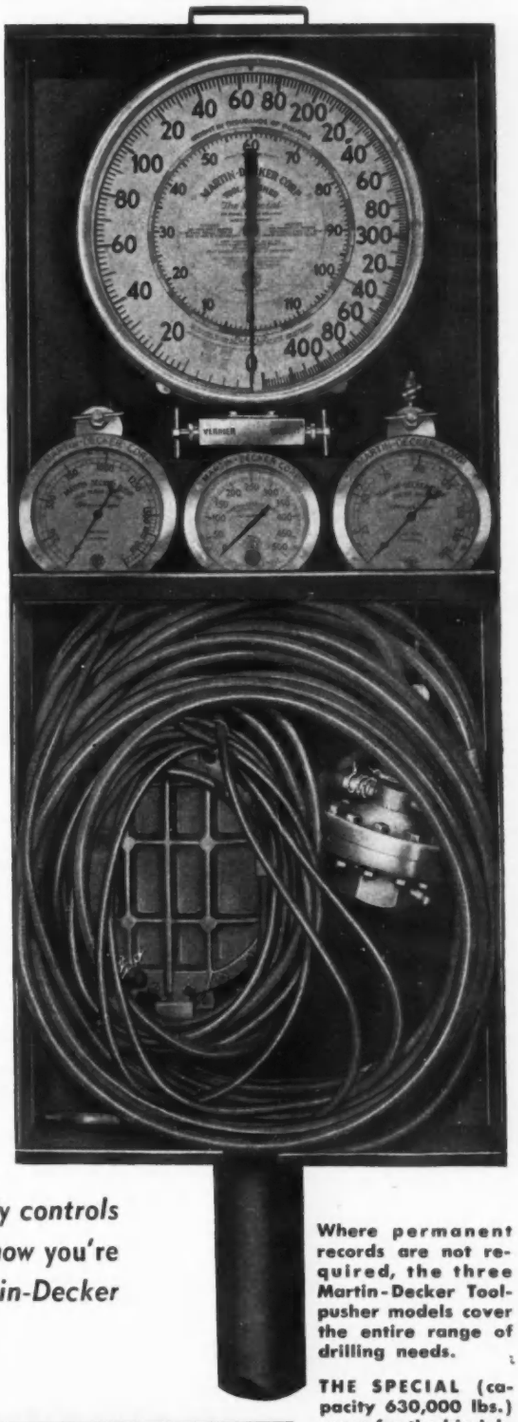

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fundamentals of seismic prospecting in recent years, there has been improvement in the art of application and interpretation. Multi-stations have been used in areas (such as North Texas and Central Oklahoma), in order to gain detailed information sufficient to indicate structural conditions completely opaque to earlier surveys. A number of discoveries are to be credited to this improvement.

In West Texas, where surface sands are unconsolidated to such an extent as to seriously hamper normal wave propagation, some recent seismic survey work has returned to the refraction principle with the second arrival being recorded and analyzed as well as the first. From result gained, this revised and improved means has provided information previously unrevealed. Also, there has been much recent investigation as to variation of frequency recorded and as to which wave band is most suitable for varying conditions. Not only are multi-stage recordings being made, but also different frequencies are being simultaneously recorded to provide additional interpretative values.

The improvements in manner of placing the shot, in the shot itself, in the receivers, in the recorders . . . all these have added to the value of seismic methods. Also, the methods of interpreting are now more highly developed so that even if the past-used equipment had not been improved, the end results today would be more conclusive than in past years.

Both the graviometer and magnetometer have been improved and rendered more efficient without making them more delicate. As a matter of fact, the actual trend has been toward greater ruggedness along with the greater sensitivity of the instruments. Weights have been lessened to make transportation to difficult stations less of a problem. More stations are being made, quicker results are obtained, greater detail is possible in the use of these instruments than in past years. The improvements have naturally resulted in broadening the range of application of these tools in both reconnaissance and detailed surveys.

Stratigraphic drills have been improved so that deeper coring is economically possible. This manner of exploration is relatively new as distinct from the core drill as chiefly applied in the definition of structural conditions of near-surface strata off-trend structures, fault lines, basins and other features have been drilled with stratigraphic equipment in order to obtain samples of possible producing horizons for exact physical analysis. Fields have been discovered in this manner, and it is suggested by authorities that this type of slim-hole drill affords the most important currently proven method of searching for stratigraphic traps or other accumulations of a non-structural nature.

The ever-progressive science of straight geological deduction has of course been advanced by new theory, new fact and new analysis. This applies both to subsurface and to surface work, to stratigraphy in all areas, but particularly to petroliferous areas, and to the many types of analysis to which the geologist is called. But because of the nature of this work, it is not a part of this general subject.

The various aids to geological interpretation have all been re-examined and improved where possible. This applies to core-analysis work where more accurate, more economic and quicker methods have been perfected. There has been steady improvement in coring equipment and methods. Semi-exploratory work, such as bore analyses for water intrusion, dip of strata, mud analysis, width of hole, etc., have either been recent evolutions of past effort or have been improvements of older equipment. Logging equipment has had its range and application extended with additional interpretative means. All these aid materially in the search for new fields.

Not all of the "new" methods of petroleum exploration can be described at this time. There is one in particular that is an evolution of equipment now

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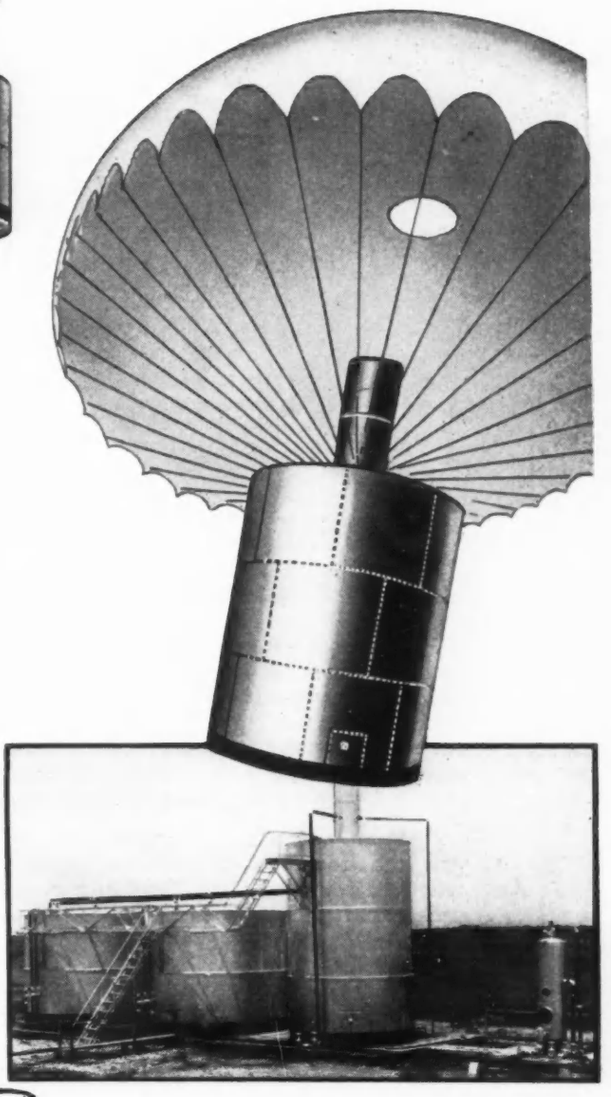

Rather far-fetched, you say, to drop oil field tanks from the air.

Yet, it may have already been done. Not set-up, of course, but bundle by bundle.

Facts are that a great number of Butler-Built Bolted Steel Tanks are with our armed forces. They were especially made for mobile storage of aviation gasoline close behind the battle lines. If needed quickly at some new or captured airport, you can darn well depend upon the ingenuity of the Yanks to fly them in if necessary.

The thought we would like to leave with oil men everywhere is this. Butler-Built Bolted Steel Tanks are now available to a limited extent. Post-war they will be readily available to the oil fields of the world. Furthermore, the improvements that have been made in them will stand you in good stead—make them adaptable to many new uses.

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BOLTED TANKS, RUNWAYS AND STAIRWAYS

seeing war service. As a peacetime oil-finding tool its possibilities are unknown, but sufficient research has been done to encourage further laboratory work and field trials. In nature, the method is an off-shoot of seismic analysis.

Two other methods barely out of the laboratory are not yet tested sufficiently to allow judgment as to potential usefulness. Neither of these methods is a direct evolution of other tools of the industry despite a similarity of manipulation, and so can be classed as new rather than improved tools. In neither case, however, are the methods able to directly locate petroleum. Instead, they are new methods of interpreting subsurface conditions favorable to the accumulation of oil or gas or both.

A new piece of equipment is being added to the stratigraphic or slim-hole drills that could either be classified as a new tool or as an answer to an old problem. This unit is a drill capable of driving a 1- or not larger than a 1½-inch hole to 6000 feet or more. There have been serious mechanical and stress difficulties in designing a unit capable of this type of drilling, but it is believed that with some of the new alloys now being used in war effort, and with improved fabrication and simplification of driving mechanisms, that the tool can be made available to the industry. It is in the machine shop of a large company, having already been taken out of the blueprint room.

Geodynamic prospecting, an evolution of hydrocarbon analysis methods, measures the undisturbed rate of gas diffusion through a surface area. This method has been applied in more than 70 surveys, with results carefully tabulated. Evaluation of this method as a new tool is incomplete. Analysis of samples of soil from over a prospective area has by no means been discarded as a prospecting tool. As a matter of fact, new method of interpretation of results have been developed that are now undergoing field tests.

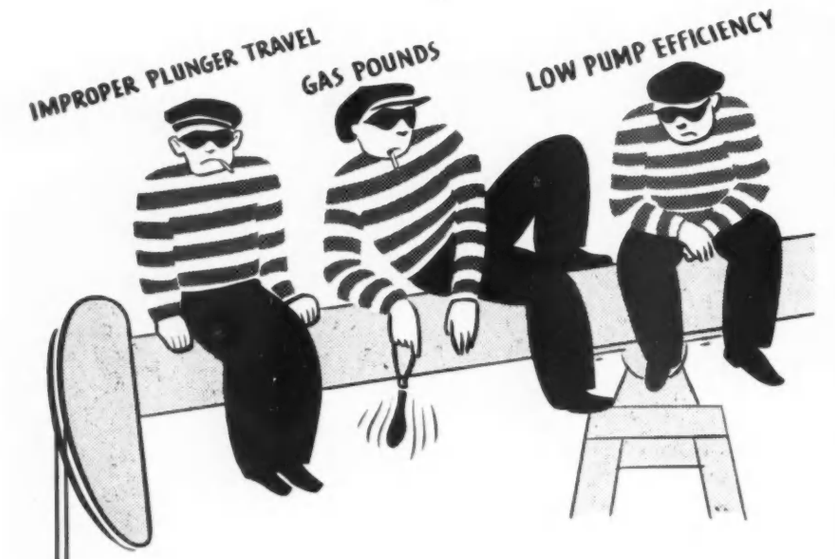
Methods of logging, while not strictly new, are now being applied to the search for oil by surveying old holes in old fields or outpost failures. In this application, the gamma and other ray equipment is classed as an exploratory tool. Correlation of results is the key to possibilities.

Another method having to do with hydrocarbon content in soils concerns itself with bacteria that apparently have a peculiar propensity for petroleum wax. A patent recently has been issued covering the use of this type of bacteria as an informative agent. There is no information available as to results.

Still another new method is an off-shoot of a type of mud analysis using "black" or sub-violet light to produce fluorescence. Earth samples are obtained from spaced stations over a prospect and are then suitably treated. As a result of this initial treatment, the samples are non-fluorescent except as for included non-petroliferous matter of a fluorescent nature not responsive to this initial treatment. A second act renders fluorescence possible. This method is not out of the laboratory and while it offers distinct possibilities, there are certain drawbacks and undesired values for which it is necessary to compensate.

No doubt there are additional methods undisclosed at this time. Some may have possibilities beyond those here considered. In the ordinary course of research, private or in group, new probabilities constantly are recognized. All but a few are eliminated as worthy of exhaustive exploitation almost immediately, but some few are carried to field tests.

Reducing the question of oil discovery to absolute fundamentals, as the research scientist would do were the problem being attacked for the first time,



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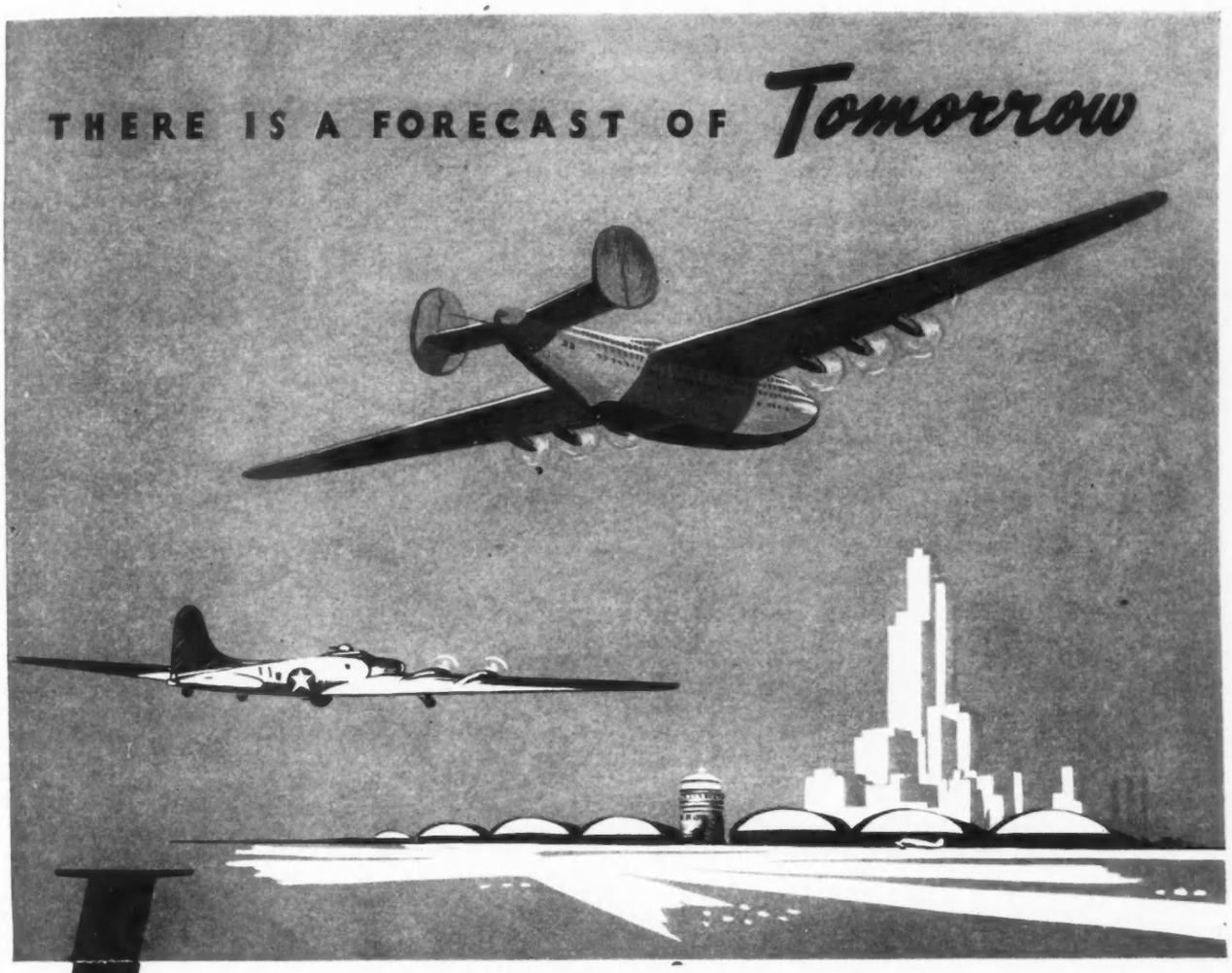

IN WHAT E.L.I. IS DOING TODAY!

WITH the present trend toward releasing more materials for the manufacture of vitally needed instruments and equipment to be used on the Oil Front, E.L.I. is increasing as far as possible the manufacture of geophysical and other instruments formerly furnished the Petroleum Industry.

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EQUIPMENT IN WORLD-WIDE USE

the physical properties of the substance must be examined in an effort to find one that might be distinguished from a distance. Research has run the gamut of these properties many times without isolating any one that is responsive from a distance, or any that can be made to reveal a presence by induced activity or outside stimulant. Yet there is always a chance that a new line of effort might produce results unpredictable on the basis of any past experiment. There are a great many lines of approach concerning these properties; resistance to current, sound absorption, etc., and there are even more approaches to the more general problem of indirectly finding oil.

One property of crude oil that has been the basis for some but not exhaustive research is its dielectric constant. Both crude and refined oil acts as a dielectric, or as a non-conductor of electricity when used between plates of a condenser. The capacitance so created can be detected with suitable instruments. Crude oil existing in a stratum of rock provides a certain capacitance throughout its horizontal distribution, and there is a possibility here for detection of oil in place. While, as mentioned, some experiment based upon this premise has been negative, results should not be taken as conclusive.

Radioactivity of rocks over oil deposits apparently bears no key to substrata accumulations, but there is a considerable range of rays and vibrations native to certain formations or that can be induced in certain solids through outside vibrations of an activating nature, that can be rechecked. Gamma rays gained through activation are already in use in the well and there are additional emanations to explore. Radioactivity of rocks is a well known phenomenon. This activity is by no means constant, nor is it evenly distributed between various strata. Recent investigation has indicated that oil-bearing sedimentation is more active in this respect, and in this there is still another research possibility.

There has been no little experiment directed toward the use of radio waves as a means either of locating petroleum directly or structural conditions favorable to oil, with most of the more exact work being confined to the second possibility. Generally speaking, results have not been encouraging, but also in this case these results are not considered so conclusive that the basic idea should be abandoned. As a matter of fact, the major drawback is in the excessive attenuation of the waves employed; and after plotting these on graph paper it is to be noted that the longer the wave length, the less the attenuation. Thus, while frequencies of 1400+ are almost lost through 100 feet of strata in actual tests, there is noticeably less attenuation of longer waves, and while there is no evidence either way, the longer, low-frequency radio waves may penetrate the earth to a considerable depth before being absorbed.

In considering this spectrum of vibrations the above results should be anticipated if any of the frequencies show any degree of penetration; this being so because in the higher end of frequencies the properties of the waves become more and more comparable to infra-red, and this band is quickly absorbed as heat. While the problems of generation of longer waves are manifold, this branch of research might well be followed a little further.

A suggestion has been made that some of the ray equipment might be adapted, or special equipment devised, to be used on the surface as survey units. It is suggested that in areas where unconsolidated surface beds, as the sands of Western Kansas and in sections of the Permian Basin, overlay and shield subsurface structures, the unit might be exposed to variations in radiation penetrating the sand thickness. The idea is to support the instrument at a uniform distance above the earth, and to pull it between predetermined stations. The resultant profile of vibrations would in reality be a horizontal intensity graph. It would be necessary to shield the instrument from atmospheric and solar disturbances. While it has

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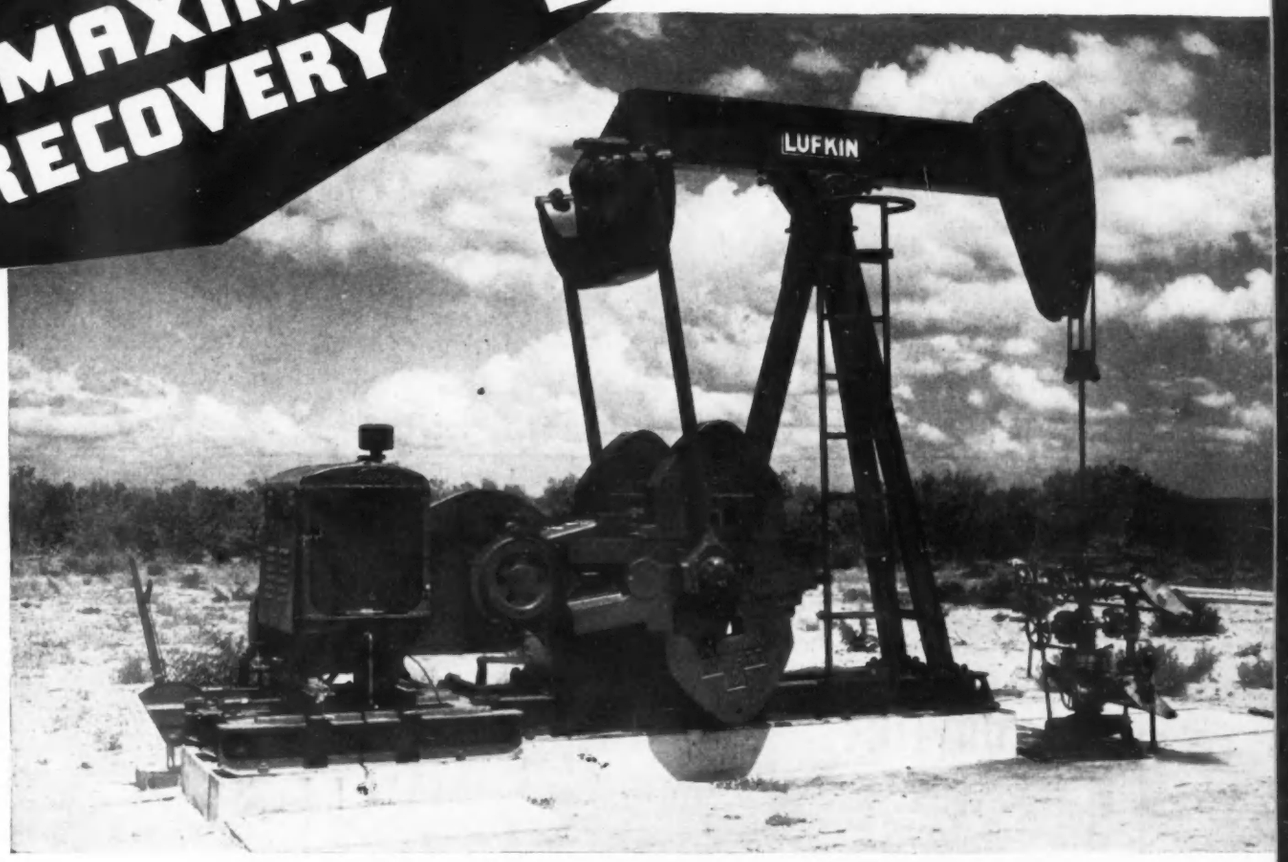

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LUFKIN is now producing parts for ships, tanks, guns and truck-trailers for our armed forces.

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PUMPING UNITS

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been pointed out that rays of the type necessary to actuate such an instrument normally have little penetrating power, and would be exhausted by a very thick section of mantle, the theory remains a theory. It might be further pointed out that even if primary rays of vibrations are absorbed in the thickness of surface beds, the original emanation might have produced by impact a secondary response that can be detected.

Extremely high-frequency sound vibrations are another matter of concern to the research worker in this search. Ordinary sound, which is audible to the human ear, ranges between 20 and 30,000 vibrations per second. In the scale beyond the 30,000 limit, the physical vibrations of matter continue as an unheard spectrum. This inaudible range is called ultra-sonic or super-sonic vibrations.

In the usual seismic work, wherein a charge of explosive is detonated, the propagated waves are spread rather well over the spectrum, but those used or recorded are the lower frequency, audible vibrations. It has been found through practice that this range compliments the required instrumental sensitivity and at the same time this range of frequencies receives the greatest initial energy impetus by the charge. Countless unused vibrations are also set in motion by the explosion, and among these are the ultrasonics. The chief drawback to their use has been their rapid absorption in the earth compared with the absorption rate of the longer wave lengths of audible sound. In seismic surveys in California good reflections have been received from depths of 30,000 and 40,000 feet with regularly used frequencies. On the basis of present knowledge and investigational evidence, sonic frequencies only penetrate a useless distance into the earth.

Despite the apparent limitations of this means of investigation of substrata, the use of sonic frequencies has much to offer the experimenter and by no means is there absolute proof that this range of vibrations cannot be turned to use. In fact, with sonic vibrations, it is possible to use controlled generation, as with quartz crystal or with a magneto-striction unit, to gain minute control of outgrowing impulses. Also, the waves could be hetrodyned for precision and a number of additional and very desirable manipulations would be possible with sonic frequencies that are less accurate or impractical with the longer sound vibrations. There is a wide realm open in this branch of the sound spectrum for additional investigation.

By carefully resolving all the properties of oil and gas into their fundamentals so that they are simply expressed, each property can be studied individually and intently for possible control. The method that might be applicable to the particular property being considered must also be equally simplified. In following research, the problems will quickly become highly complicated and there will be numerous off-shoots of potential value.

There must be a healthy disrespect for the negative results of some past experiment. There is very little in research that is exhaustively conclusive. Practically every laboratory or field experiment opens up new lines of thought and speculation that are not part of the original problem and that consequently are not given further consideration. It is these openings as well as in the basic ideas that the research is necessary. Any completely new theory, of course, opens new lines of approach.

All of the possible lines of attacking the problem have not been listed here. They are not all known. Many are the subject of speculation without any work of consequence having been done. Today, with so much of the oil industry's inventive and research talent contributing exclusively toward projects nominated by war necessity, is the time for these lines of approach toward new oil-finding tools to be made the subject of research and experiment not only by the laboratory departments of companies but by individual researchers as well.

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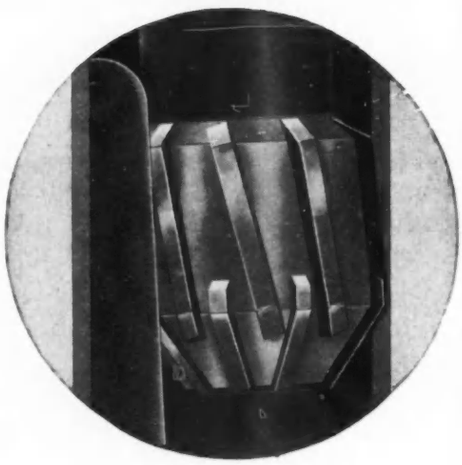
The spiral setting of Kinzbach insert mill blades (high speed tool steel, properly heat treated) assures a uniform depth cut and positive cutting action. The result is a long, clean window, and drill pipe twist-offs are minimized.



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This is an improved snatch block in the lower priced field. It is quick-opening, flexible and sturdy. It is safely locked and quickly released by improved locking pin. The yoke permits hook to swing as well as swivel, thereby relieving undue strain and affording greater flexibility. It is also available with swivel clevis.

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This block was designed for all kinds of heavy trucking, tractor and rotary work. It is so constructed that it will not spread under heavy loads and is available with single, double, or triple sheaves. Swivel hook swings to one side to permit insertion of line. It is furnished in 12" x 6", 15" x 8" and 16" x 10" sizes. Steel swivel hooks or closed clevis are interchangeable.

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McKISSICK PRODUCTS CORPORATION
TULSA, OKLAHOMA

Public Good Will

• CONTINUED FROM PAGE 31

rames to wane and fade into oblivion for lack of advertising. To keep individual names and trade marks before the public, advertising can be pitched upon the note of helpfulness to the war effort—helpfulness which is a vital contribution, really to the welfare of every man, woman and child in this country.

(3). *Radio Programs.* Many oil companies use the radio extensively in their advertising campaigns. These programs offer an opportunity to present short "plugs" about the industry, with each company doing its own preparation. These could take the place of "plugs" for individual products, now that rationing has reduced markets so severely.

(4). *Talks Before Civic Clubs.* Talks before civic clubs are still another approach that will reach sizeable numbers, if a planned program is adopted. The medical association used this avenue widely a few years ago in attacking socialized medicine, sending a very able speaking with an excellent story to many parts of the country. He spoke before such clubs as the Rotary, Kiwanis and Lions, and not medical associations.

Through jobbers or company personnel that are members of various civic clubs, arrangements could be made for a speaking tour, or for selected individuals from the industry to appear on the program.

Such talks have the advantage of getting local publicity in newspapers. When a speaker appears before one of these clubs, it is local news and newspapers are more apt to give him space than if material and copy is merely mailed out all over the country.

Conclusion

In the past the industry has been confronted with the possibilities of federal control, unfavorable taxes and other undesirable legislation on several occasions, but these threats have never been as serious as the ones in the offing, particularly if the handicaps under which the industry is now forced to operate prevent it from completely fulfilling in every detail the demands made upon it by the national emergency.

How clearly the industry presents its side of the story, to a large extent will determine the views of the public and legislators on the questions. The mere expression of strong opposition and hatred of such a proposal will not suffice. Sound logical, unselfish reasons for opposing such actions are a necessity.

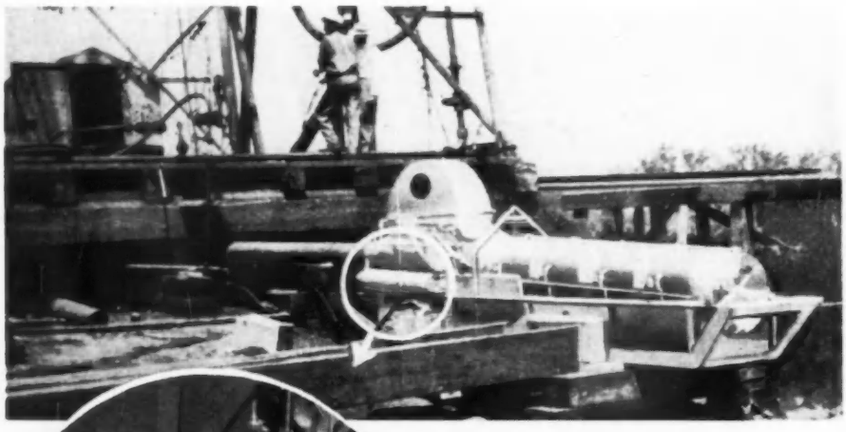
A vast audience might be made conscious of its own interest in the welfare of oil, if appealed to properly on a wide enough basis. It is important that all posters, advertisements, talks, etc., bring out the interest of the public in oil as much as possible, and also what the industry has contributed to the war, to industry and to civilian life. Propaganda for non-government interference, favorable taxes, and other needs can be woven carefully and subtlely into these.

There is much to gain by conveying this knowledge and nothing to lose. An understanding audience is usually sympathetic, and certainly should respond favorably to the truly heart-warming story that oil can tell. Its effect on the public would be to humanize the activities of oil companies; to prove that business enterprise and public benefit are inextricably mingled; to establish the oil industry as a vital and indispensable part of America's economic wealth and structure, and as a business that has contributed many benefits of every citizen.

The future of the oil industry, and perhaps of all business-government relationship, may depend upon such a program being started now.

THE GEOLOGIST'S BEST FRIEND

TRUE SAMPLES OF FOOT BY FOOT CUTTINGS PROVIDED BY THOMPSON MACHINE



As simple as reading a log—that's what geologists and drilling operators say about foot by foot cuttings obtained from the THOMPSON SAMPLE MACHINE, which is standard equipment on all Thompson Shale Separators. Samples easily obtained and ready to analyze. Sample machine alone is worth the full cost of the Thompson Separator.

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THOMPSON TOOL CO., INC.

Sold Through Supply Stores Everywhere

Phone 3521 Iowa Park, Texas

Alcia Ricketts has a husband in the service and a job helping Uncle Sam in the war. She is one of several women who have replaced men as tank gaugers for Standard Oil Company of California.

Women Efficient at Many Jobs Formerly Reserved to Men

Oil industry is finding that with its manpower going to war, women can fill many positions where their use only a few months back was unthinkable—and adjusting tasks for them may tend toward efficiency

NOT the least significant of the changes brought about by the war is the important place being taken by women in doing jobs formerly held only by men. So rapidly are women being absorbed into all types of industrial work that the whole labor picture is being colored by their participation in it.

Figures emphasize the extensiveness of the change now in progress. For example, in December, 1940, the total number of women in United States industry, excluding any agricultural pursuits, was 10.2 million. By April, this year, the total stood at 14.1 millions, or an increased employment of women during little more than two years, of 4.1 million. About 1.7 million of these began work between April, 1942, and April, 1943. The total is due to grow perhaps a million more during the rest of this year.

Such numbers of women getting into industrial work for the first time is a phenomenon to say the least and implies widespread adaptation on their part, and surely a revolution in one sense of the word in the industries where they are being absorbed. But results have been highly encouraging in

Her husband is a Marine Corps lieutenant on active duty in the Pacific. She, too, is helping to win the war by analyzing hydrocarbons in a research laboratory.

the whole experiment. Universally, the situation is satisfactory to both women and industry.

The same reluctance to take women into industry generally has prevailed in the oil industry, and still does to a great degree. It is true that at first thought the two appear somewhat incompatible. There seems at first glance to be little that women can do outside oil company offices to have any affect on the manpower shortage. However, a few companies are finding this idea false. Standard Oil Company of California, for example, now has women working in the fields.

"Several months ago the company's producing department employed its first women pumpers in the oil fields. Twice during her 8-hour shift the pumper visits each oil well in her string, anywhere from 40 to 70 wells, to see that the engines are properly lubricated and the wells are producing correctly. She gauges the oil from the wells and draws off any water that may have settled to the bottom of the tanks." So writes Edgar A. Waite, manager of the Public Relations Department of Standard Oil Company of California.

Early last year at the mere suggestion that women be considered to replace men in field jobs, experienced supervisors shook their heads. Today these same skeptics are inclined to brag just a little about the "girls," a good many of whom are grandmothers. "They're doing okay!" is the general verdict.

"A survey of the company disclosed that women could be hired for most work that did not require special technical skill, long years of training, or lifting beyond the legal limits of 25 pounds," Waite explained. "It was found in many cases that by careful juggling, technical or heavy portions of jobs could be combined and assigned to experienced men, leaving the lighter, routine parts to women."

The natural-gasoline department was the first division of the company to hire women for outside work in the fields. Already 10 percent of the workers in this department are women, and it is predicted that eventually the figure will grow to 20 percent. Women have replaced men roustabouts and gasmen helpers in the field and in laboratories. They test samples, run distillations on natural gas, change charts, "walk" gas lines and check lines to see that the flow

She is not quite five feet tall and can fire a still as well as any man.

Emily Lunch, pumper in a Standard Oil Company of California lease, field, with "Pooch," the busiest dog in the oil business . . . A stray who wandered into the oil field and promptly nominated himself official bodyguard for women replacing men pumpers, "Pooch" works by night and sleeps by day. He accompanies the women pumpers on the night shift from well to well, sometimes riding with them, sometimes trotting behind their cars. He knows their routes so well that he often starts off to the next location in advance of a pumper and meets her when she arrives.

of gas is not restricted by the accumulation of condensate.

Probably the most unusual service being performed by women for Standard Oil Company of California are jobs which are on a shift basis such as booster-plant and extraction-plant-operator helpers. These women act as engine-room attendants in some of the larger plants.

On a hill near a refinery one woman takes care of a number of tanks which receive crude oil from pipe lines. She climbs the tanks every hour, gauging and taking samples. In her hands rests the entire responsibility of controlling flow from these tanks to the refinery stills.

Some women have found that dogs make good companions on the job. A stray attached himself to the pumping crew of a string of wells in the Taft area, riding with each woman pumper as she made the rounds. The dog works 24 hours a day 7 days a week, accompanying all shifts on this string.

Continental Oil Company is using women to replace men in seismograph crews, as assistant computers. The women computers travel with the crews and work in temporary field offices. Their duties include the labeling and cataloguing of data incidental to calculations of structures from the seismograph records.

Facing the problem of manpower shortage, the United States Department of Labor recognizes the call being placed on women, and further large additions of women workers are predicted for the rest of this year. The department points out that women can give their best service only if they are placed in jobs for which they are best suited and recommends definite procedure in employing women.

The first step in a sound placement program for women is selecting, on the basis of job analysis, the job suitable for them. These analyses reveal not only the skills required but the physical demands of tasks in terms of strength, posture, and exposure to hazards. In the

Feminine barrelhouse worker starting an empty barrel down the conveyor.

process of such analysis, engineering changes may be indicated that will lessen the physical demands of the job and at the same time increase operating efficiency.

Hand in hand with the importance of selecting jobs suitable for women goes the importance of selecting the right woman for the particular job. Matching the women to the job is the real problem with which industry must concern itself.

With Standard Oil Company of California, it was found that more attention from a personnel standpoint has to be given to women than to men. The task of selecting women for war jobs was turned over to Mrs. Virginia Harrison who not only handles the hiring of women, but also acts as their friend and counselor.

Mrs. Harrison's background has given her a deep and real understanding that the war is a matter of life and death, and not just something to read about in the headlines. She and her husbnd were living in Paris when hostilities began. He joined the British army and she fled with her three small children across France with the Nazis at her heels. When she arrived back home in this country, she immediately sought a war job and was employed by Standard Oil Company of California.

The hiring of women for work in the refinery was a problem in the beginning. First, Mrs. Harrison had to find out for herself just what each type of job required of the worker. Then she helped devise a simple aptitude test to determine if women applicants were mechanically inclined. Several training periods were established for accepted applicants, in which they work under supervision before becoming full-fledged operators.

Mrs. Virginia Harrison, assistant personnel supervisor for Standard Oil Company of California at Richmond, interviews an applicant for an operating job.

According to the Department of Labor's findings, such a detail as a carefully drawn application blank goes far in simplifying the selection procedure for women.

For successful selection of women for war-industry jobs, the Women's Bureau of the department recommends:

1. Prior to selecting women for the jobs, a careful analysis of the plant should be made to determine:
   a. Which jobs are suitable for women.
   b. Which jobs can be made suitable for women.
   c. What changes are necessary in conditions surrounding the job, as for example in height of seats or benches, in weight of machine parts or of products to be handled, in installation of mechanical lifts, and so forth.

2. The Persons who are to select women should have the following qualifications:
   a. Detailed knowledge of the jobs to be filled and of conditions in the plant.
   b. General knowledge of the types of work for which women ordinarily are fitted.
   c. Interest in women and belief in their capabilities.
   d. Competence in interpreting such tests as may be used in selecting women.
   e. Freedom from personal prejudices, and ability to inspire confidence in the job seeker.

3. The procedures for selecting women should be carefully planned in advance and, may well include:
   a. Provision of simple and adequate application blanks.
   b. A series of interviews, with purposes of securing information, giving information, and establishing friendly relations.
   c. Tests rigidly tailored to fit the specific job.

In surveying the wide fields recently opened to women workers, the Office of War Information has been able to make

deductions that apply pretty generally, and support the rapidly growing belief that women are in industry to stay. The OWI study brings out that changes manufacturers have had to make to accommodate women are for the good of men as well in a majority of instances. Also changes are less drastic generally than first considered. Psychological adjustments made by both employer, worker and public usually have outweighed in importance the mechanical changes and job simplifications that have had to be made. The distinction between "man's" work and "woman's" work is rapidly fading. Simplification of jobs by breaking them down has increased production. Jobs have been made more attractive. New fields have been opened to women, notably the widespread assignment to women as counselors and personnel officials, a field formerly entirely closed to women.

It probably is not possible to make up the shortage of manpower in the oil industry by using women workers, since the acute shortage affects technically, or specially trained personnel. However, as has been realized in other industries, there is perhaps room for some juggling and shifting, combining, or like adjustments that might result in better use of manpower available. Too much stress cannot be placed on job analysis. It is the foundation stone in getting the most from personnel available, and should be the key point in every job problem.

Recently there has been sound advice given the industry on geology thinking. It is altogether possible that similar advice is needed in the employment of help. Prejudice against a thing because it has never been done is, after all, no real argument. The Army is the best example to be found of facts disproving prejudice. A very short while ago, if anyone had even mentioned that women would be a part of the United States Army, he would have been ridiculed or considered a dreamer to say the least. And yet, women are a part of the Army —with the same privileges and responsibilities as men.

Some oil field work is rough, but a good deal is not. Much of it requires no more endurance than managing a house, looking after children, preparing meals, duties which most women who live in or near the fields are accustomed to year in and year out. A re-valuation of jobs by companies would undoubtedly reveal that there are many opportunities for substitutions whereby women could be given work usually done by men. In all probability women who could qualify for such jobs would be more than glad to take them, for the duration of the war only, thereby performing a patriotic service as well as carrying on while the man is fighting or serving the country otherwise.

One of the operators employed in a Standard Oil Company of California refinery. She works on a shift basis, changing shifts every week.

The theory is working in all other types of war plants, with ever widening scope of activity by women. War Manpower Commission is apparently convinced that the solution to the manpower shortage lies in the use of women, and is exerting all its influence to assist in training programs and all steps possible to aid women prepare themselves for such work. Peculiarities of the oil industry, particularly producing, put certain limitations on personnel, but the same thing is true to a greater or less degree in all industries. Adaptation is the job to be done. It is a case of going around the wall if we cannot go through it, and a more comprehensive use of women in the oil industry may be the way round.

First Triple Completion in Texas At Lake Creek

By FRANK BRIGGS, Staff Writer

FIRST completion in Texas of a well producing simultaneously from three separate sands has been made by Superior Oil Company on the McWhorter lease at Lake Creek, Montgomery County. This field is in the Upper Gulf Coast (Wilcox trend) and is a short distance from the Conroe field. Seven gas and distillate sands have been uncovered at Lake Creek, and while all seven are not found in all wells, all wells have multiple sands. Because of the apparent economy, Texas conservation authorities have approved dual and triple completions in this area. Three sands can be produced at a cost of approximately one-third of that involved in completion of individual sands.

Lenticular Sands

All of the Lake Creek productive horizons contain gas and distillate under high pressure and each is a separate and distinct reservoir with impervious formations between. The first of these sands is encountered around 9200 feet, just a little more than 700 feet below the top of the Wilcox formation. This particular pay, known as the "A" sand, has a thickness of 65 feet indicated by the well from which it produces. The next sand, known as "B", occurs at 9744 feet and is penetrated for a thickness of 35 feet. The "C" sand is found in isolated lenses and all wells do not pick up this particular sand strata. It is found by its producing well at 9945 feet and has a pay thickness of 65 feet.

The production from each sand has a separate welded, bow-shaped connection at the well-head that leads into an individual flow line. Two adjustable chokes, one on each side of the head, are placed in each line.

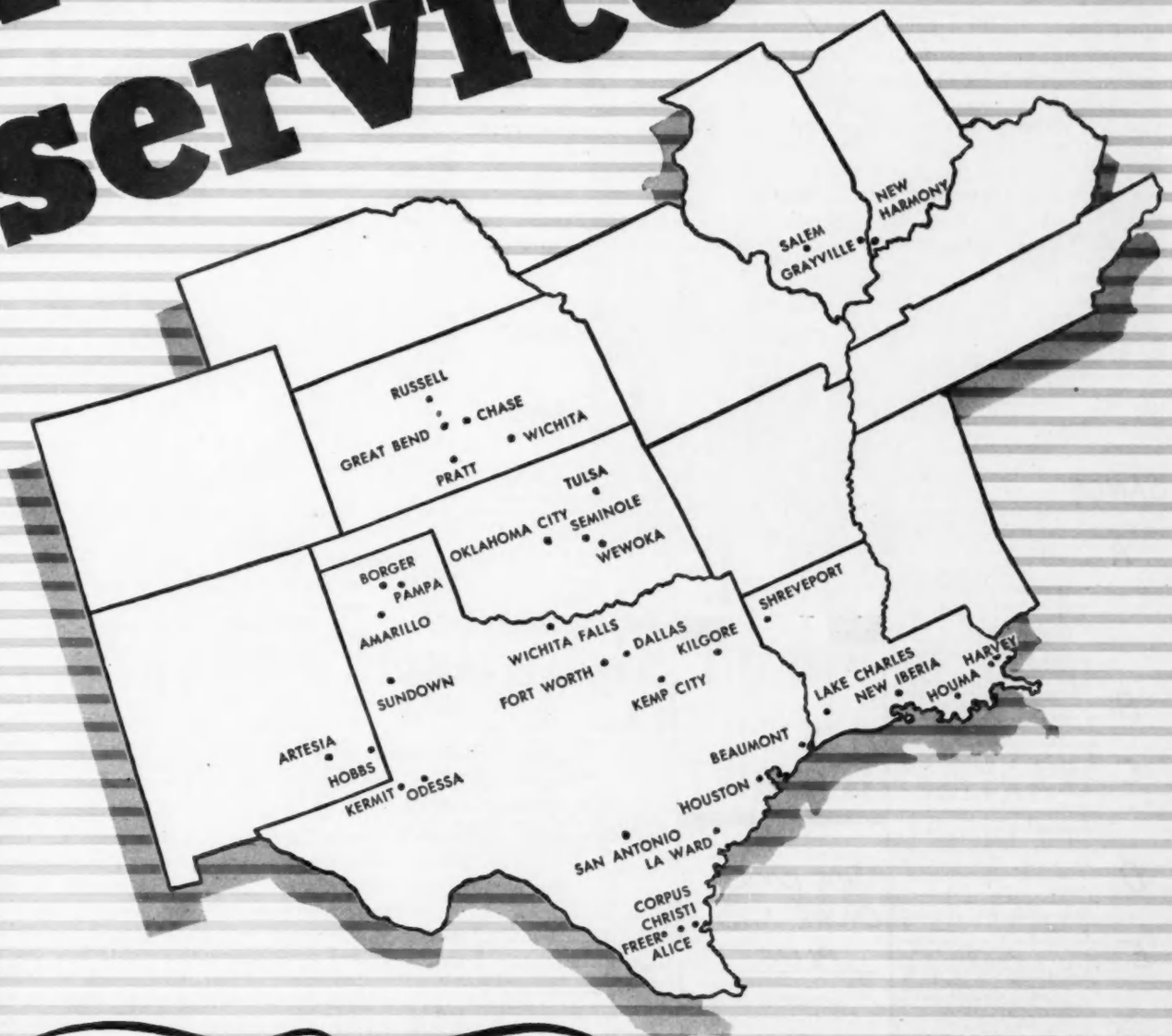
At 10,220 feet, the "D" sand is found; it has a thickness at its production point of 70 feet. Below this occurs the (comparatively) rarely encountered "E" sand. This begins at 10,990 and ends at 11,020 feet. The "G" and "H" sands appear to terminate the pays. These sands have much greater pay thickness in their production wells than the upper sands, and the depths at which these formations occur seem to vary, due to their lenticular characteristics, from well to well. For instance, the "G" sands begin at 11,475 and end at 11,702 feet—a thickness of 227 feet. Above the base of this however, the "H" sand occurs at 11,665 and terminates at 11,952—a thickness of 287 feet. The zone depths are recorded from the present wells in the field, each producing a separate sand; a well may encounter all seven of these sands and it may find only four or five.

The first of the triple-completed wells here produces from the "A", "B" and "D" sands. All of the present singly completed wells and those to be drilled in the future will be completed in three sands at the termination of the present program.

Triple-Completion Practices

Completion involves setting, 7⅝-inch casing through all the sands; perforations are made in the pipe at the pays desired to be produced. Although the

at your service

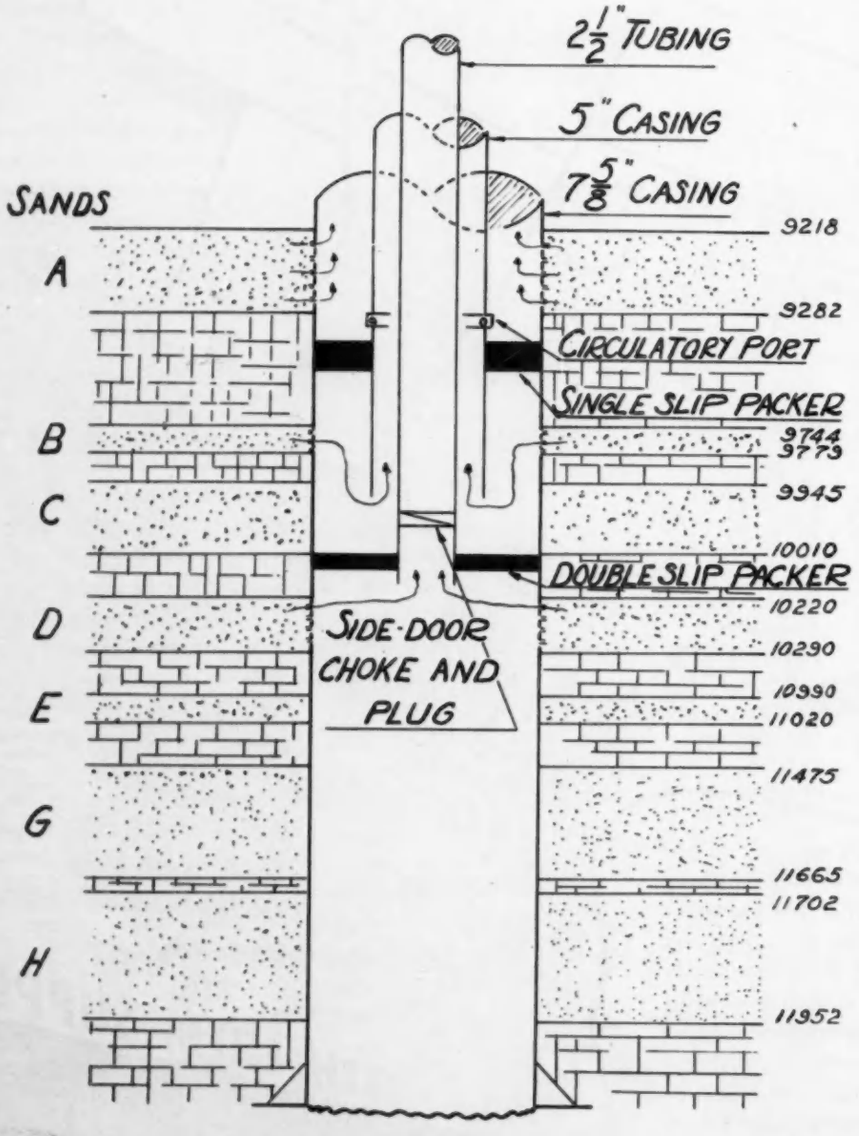


Bethlehem Supply announces the opening of another of its familiar yellow-and-black supply stores—this one at Kermit, right in the center of the new West Texas Field. At this store you can get all necessary drilling and producing supplies, from bolts and nuts to complete drilling rigs . . . products made by manufacturers of national reputation. And if something you need happens not to be in stock, leave it to this Bethlehem Supply store to get it for you without delay. So make a mental note—there's a Bethlehem Supply store at your service at Kermit, Texas.

pays are definitely known, each formation to be produced is tested by the usual drill-stem procedure. At the completion of these tests, a double-slip-type casing packer, composed of drillable material, is run in on tubing. This packer is set between the lower pay and the two upper sands to be produced. After setting, the tubing is released from this packer and withdrawn from the well. Next, another packer is run in on the 5-inch string of inner casing and set between the two upper sands. This pipe contains a circulatory port just above the packer. This port is closed at installation and is opened by a predetermined number of turns of the pipe. As soon as this port is opened, washing action is instituted through the 5-inch pipe and continues until enough mud has been unloaded from the upper sand to allow this formation to produce, and the port is closed again.

After the topmost pay has been brought in, the 2½-inch tubing string is run inside the 5-inch inner casing. This tubing contains a special arrangement involving a side-door choke and a removable plug. It is seated, or bottomed, in the previously set double-slip-type casing packer. The plug and side-door choke are placed just above this packer in the tubing. In order to bring in the middle sand, the tubing is first plugged and washing action is permitted by means of the side-door choke. As soon as sufficient mud has been removed, this sand begins to produce, the tubing is closed off and the tubing plug is pulled by wire line. This closes-in the middle sand through the annulus between the tubing and the 5-inch strings, and opens the tubing to the lowest pay. After bringing this lower sand in, all three are ready to produce. The well is completed so that production from the lowest pay flows through the tubing, that from the middle through the annular space between the tubing and inner casing strings, and the upper sand through the inner and outer casing annulus.

In order to prevent migration of oil or gas from one sand into another through packer settings, special lead-seal cups are used between the packers and the pipe seat. Before each packer setting is accepted, pressure tests are conducted to actually determine whether or not a true seal has been obtained.



Schematic drawing of triple completion. The seven sands and the approximate depths and thicknesses are shown. This first tripally completed well produces from the "A", "B" and "D" sands. The packer arrangements, circulation port and side-door choke details are shown in approximate position.

Operation

The regular production of this well from three sands awaits completion of the cycling plant being constructed in the Lake Creek field. This plant will receive gas from all, or any combination, of the sands in the field, process it and return the residue gas back to the formation. With certain exceptions, injection wells are to be arranged so that the residue gas may be returned in the same quantities as withdrawn to those sands from which originally obtained.

The exception lies in the ruling that gas from either the "G", "H", "C" and "E" sands may be introduced into either of the "A", "B" or "D" sands, for pressure-maintenance, as long as the original bottom-hole pressures in these latter sands are not exceeded. Pressures in these first named sands apparently are greater and the gas volume more prolific than those sands "A", "B" or "D". Four thousand pounds per square inch is an average figure for pressures in all sands.

Operation of this well is unusual. The well head, or Christmas tree has three production connections, three separate flow lines. The connections on the surface are welded bow-shaped, radiating from each side of the producing string and combining into a single flow line at the crest of the bow. Each radiating arm contains an adjustable choke in the line. Thus two chokes are provided, one for emergency service should the other fail.

During the period of flow tests, there was no tendency for the well to sand-cut the pipe opposite the pays. As the fluid is paraffin-free, no trouble is expected from this source. During installational work, stuck packers have occurred—but to no unusual extent. No flow valves are included in the mechanical set-up; another potential source of trouble is eliminated. The operating characteristics are ideal for this multi-completion production and installation program and large savings and more efficient operation should result naturally.

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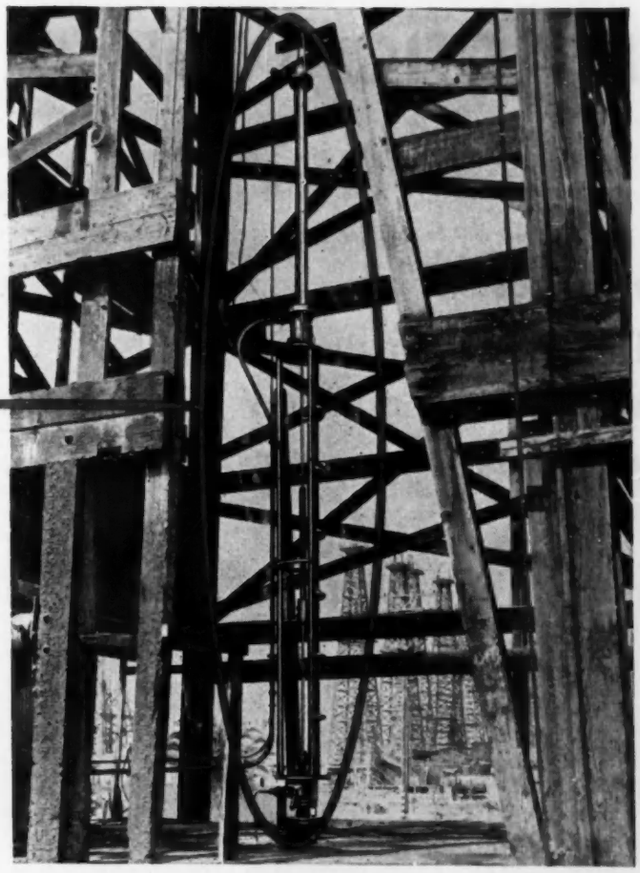

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This early installation of a Vickers Hydraulic Pumping Unit was placed in service at Huntington Beach, California, in 1937. It has been in *continuous operation for more than five and a half years without a rod failure*, pumping from 4150 feet. During this period, the Unit has required the replacement of only one set of packing rings and an annual hydraulic oil change.

Contrast this Vickers record with the previous five and a half years the well was on the pump: then there were 24 sucker rod failures and the conventional equipment required considerable maintenance.

The reasons for this performance and the many other features of the Vickers Hydraulic Pumping Unit are illustrated and described in the new Bulletin 43-24. Ask now for a copy.

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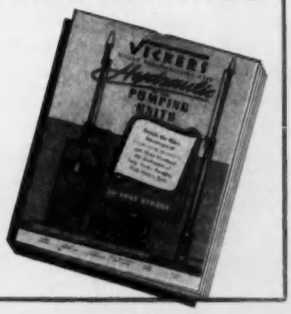

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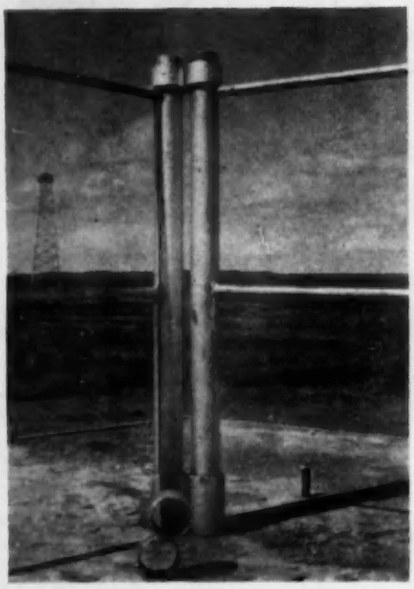
1. ENCLOSURES

Detachable Posts Aid Well Servicing Chore



Slip connectors hold panel posts in alignment, but may be released without wrenches for well servicing.

SECTIONAL fence, to enclose a well located on grazing land, simplifies servicing by permitting the rig to be driven as desired around the well head.

Such sectional fence, if assembled with bolts or turnbuckles to form fastenings between sections, frequently causes delay in corrosive or dusty localities through the threads becoming frozen or jammed with rust or dirt.

An ingenious fence support has been developed in West Texas in which a pair of sockets, welded to a pipe stake and set just above the ground, serve to hold the bases of the pole or vertical members of a section. The tops are held in position by a similar "figure 8" fastener, formed from 3-inch boiler flue to slip readily over the pipe standards, the two short nipples being welded together along their sides, so as to form parallel loops of steel.

To set up the fence or to release a section for servicing the well, the tops are pulled together enough to release the strain on the top connector, and it is slipped free. The section is then lifted from the base socket, and laid aside out of the way.

The top rod of the fence serves as stop to prevent the fastener from slipping too far down the standards.

2. PARTS HANDLING

Dual-End Cabinet Speeds Selection

WHEN the service truck must carry a large number of replacement parts, must in fact become a traveling warehouse in miniature, arrangement of the repairs in systematic order simplifies selection and saves time on the job.

One such truck carries a large built-in tool box, the upper section of which is built solid with hinged lid, to carry hand tools. Below this level the box becomes a cabinet, with long drawers extending the width of the box, and held in place by doors which may be locked shut.

These drawers, stocked with small parts, are arranged so they will slide to either side, making all the contents available without pulling the unit clear out and thus safeguarding them against loss or damage through overturning.

Notches in the tops of the drawer ends provide pulls for withdrawing the desired unit, without extra cabinet space being required.

3. HAND TOOLS

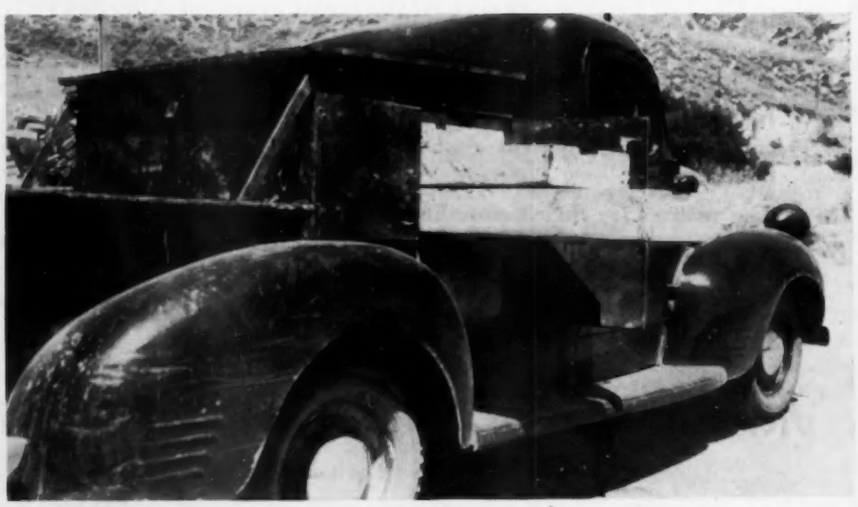
Tail-Gate Mounting Betters Vise Work

MOUNTING the vise on top of the side panel of the service truck puts it too high for convenient access when filing or close fitting is to be done, and the unit also interferes with transportation of equipment large enough to require a spread as wide as the truck body.

By placing the vise on the inside of the tail gate the unit is lowered and better access secured, with the unit completely protected and out of the way when the gate is closed.

The mounting of the vise is such as to insure clearance between truck bed and horn of the anvil when the gate is up, and to bring the movable jaw within the shielding effect of the gate so heavy materials may be piled atop the truck body without overloading the bolts used in the vise mounting. The unit takes up a negligible amount of space within the body.

The gate may be dropped onto the heavy rear bumper to provide a firm support for the vise mounting, and thus enable accurate hand work to be done. The gate, extending out beyond the truck body, affords ample clearance when joints of pipe or long structural



A weather proof cabinet, built snugly against the truck cab, is equipped with sliding drawers in which small parts may be classified and stored for ease of access or inspection.

In Stride with the Times

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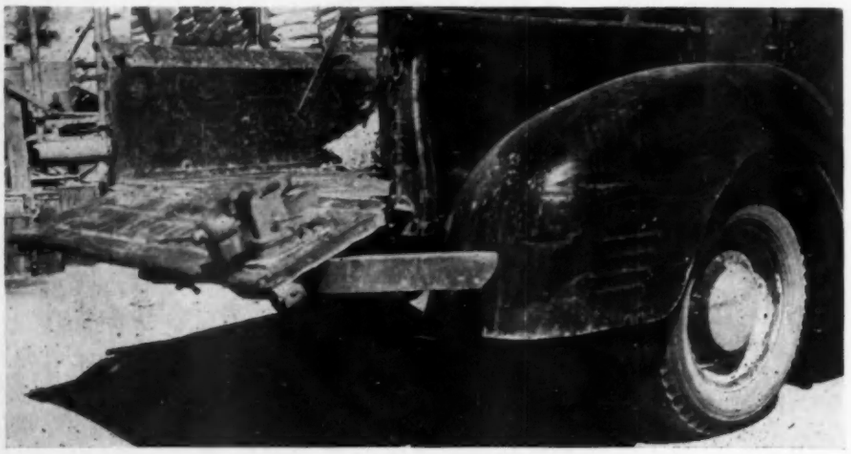


The hand vise, if mounted atop the truck body, is awkwardly situated, but if attached to gate, levelling the gate located the unit and provides back-rest for long work

shapes are to be held for working over. The farther side of the gate acts as tail support, or as footing for a block to support the work in direct alignment with the vise jaws.

4. FIRE PROTECTION

Chain Ties Motorize Hand-drawn Tank Units

IT IS frequently necessary to use the hand-drawn type of fire extinguisher at some distance from its normal storage spot. When this is done attempts are usually made to lash the cross bar of the handle to the bumper or tail gate of the nearest available car or truck, using the ½-inch rope on the unit as tie. Frequently this emergency tie works loose, or is so tied as to connect the extinguisher too rigidly to the vehicle, and breakage or overturning occurs on a sharp turn.

One company equips the handles of this type of extinguisher with short lengths of chain and snap hooks so the unit can be quickly yet flexibly attached to the tow car, and as quickly detached when at the fire so as to allow hand maneuvering to best advantage.

The welded chains are comparatively light, and do not interfere with manual handling of the unit, nor do they hinder the use of the tow rope when it is necessary to employ several men to move the unit over rough terrain.

Instead of attempting to attach extinguisher to car bumper with hand rope, time is saved at both ends by short chain connectors welded to ends of cross member of the usual handle frame.

Distillate Well Production Problems Studied With Testing Equipment

Semi-permanent installation at Katy field well testing two-phase gas stream for most effective sampling and metering methods. Differential fluid return system permits test runs on variable and high liquid content against previously calibrated determinations

By ELTON STERRETT, Staff Writer

EQUIPMENT is now moved in and connected for the start of the latest unit in the series of distillate-well studies inaugurated by the Natural Gasoline Association of America something over a year ago with tests on a well near Corpus Christi. The new series of tests, based on experience and findings from the earlier runs, involves a complete revamping of test equipment, and the setting of all equipment on a basis which will permit continuation of the work over an extended period, with possible tying-in of equipment or units for later check against basic data derived from the present series.

Well No. 9 of the Katy unit, located west of the new plant at that field, has been tied in with block gates on its regular flow system so that the output may be diverted to the test set-up. Apparatus at this point will provide well pressure and temperature data. The test line leads to the high-pressure test separator, at which point it again branches, it being possible to send all flow through the separator, or to bypass it and flow directly to the second unit.

The separator is equipped with an adjacent fluid storage chamber, in which the efflux from the separator may be run, and from which it may later be picked up, by establishing pressure differential, and added to the gas stream from the separator so as to provide any desired liquid content.

Beyond the junction of separator discharge line and the bypass is a vertical loop in which the hairpin member may be either of 4- or 2-inch pipe, as desired. A vertical lubricating fitting is provided at the first tangent of the loop to permit inserting of the desired sampling tubes. On the downflow side of the loop provision is made for metering in a vertical line, while a short distance farther along, on the run, horizontal metering may be established, and direct comparison of the two methods obtained.

A second separator, with a discharge pressure of 1250 pounds is so tied in with the layout as to insure that all gas passes through this unit, regardless of whether it has previously been processed by the first unit or not. Flow from this separator goes through lines tied in with the usual well system so that neither gas nor distillate obtained by the test procedure will be wasted.

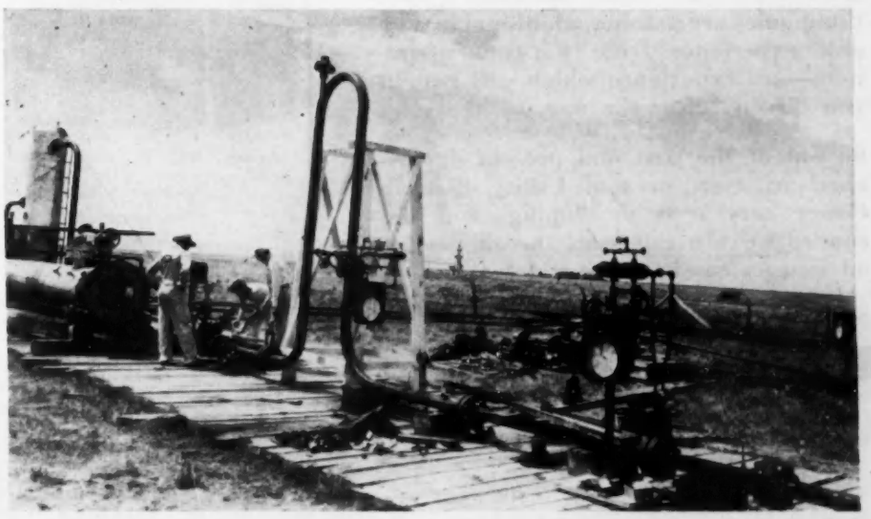
Adjustable chokes provide varying rates of flow through the test equipment, with orifice meters on each branch so that accurate determination may be made not only of the full well production, but of that proportion of it diverted to any portion of the set-up.

Calibration tests of the equipment were initiated last week, with the full-flow runs scheduled for the week of September 6 and thereafter as equipment is available.

The tests now under way include the determination of a simple and practical method for sampling a two-phase gas stream so as to obtain samples which are truly characteristic of the entire output of the well. To prevent possible gravity separation of fluid particles in the stream, the sampling devices are installed on the riser side of the inverted U-shaped sampling loop, with provision to insure centering of the tube with respect to the walls of the flow line. Varying the known liquid content of the stream, by reintroducing fluid previously separated from the gas, will make it possible to determine the effective operating limits of different types of sampling devices, and to set up comparative data from which their results may be calibrated and converted.

The pressure range at the new set-up is variable from a low of 1000 to a high of 2500 pounds per square inch or field producing top. Fluid range in the gas tested will grade upward from that of the stripped gas after its pass through the test separator to about 10 percent liquid phase by volume. The storage provides for the liquid phase at the separator is ample to provide full stabilizing runs and permit extended sampling and metering runs on a flow of predetermined content.

Investigation of new methods for determining specific gravity and liquid content of the gases is scheduled for inclusion in the tests after the calibration of the set-up has been completely determined. Field methods are to be checked through exhaustive laboratory determinations.



In foreground is the horizontal meter setting, with the other unit on drop leg of the sampling loop. At left is storage vessel for liquid stripped from the gas by the first or test separator. The type of equipment and semi-permanent nature of the installation are apparent in the mounting of the various units. The line is welded except where design features include the possibility of revision or the addition of new equipment as the tests progress.

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Have you ever stopped to analyze why the United States, so utterly unprepared two years ago, has been able to develop the world's greatest air fleet. The answer is: *Experience and organization.*

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PIWC Sees 500,000 Barrel Oil Shortage in U. S. Next Year

»

Nation May Be Without Gas Is Ickes' Warning

»

Petroleum Reserve Corporation Seeks Foreign Oil

»

Post-War Oil Problems to Be Subject of Study

»

By B. F. LINZ
Washington Correspondent

☆ ☆ ☆ ☆

A picture of a United States dependent upon foreign sources for a substantial part of its war-swollen oil requirements was painted last week by the PIWC committee on petroleum economics, which foresaw a deficiency of well over 500,000 barrels a day before the end of next year.

The committee report, submitted to the monthly meeting of the industry council, and other sources in Washington indicated that already substantial quantities of oil are entering the country from the Caribbean area, to be refined and moved on to theatres of war.

The deliberations of the council revealed that the major problem no longer is one of developing transportation facilities but of producing the oil to keep those facilities at capacity, and the way was paved for new studies of the supply situation from this altered viewpoint.

The week's developments disclosed that the foreign situation is receiving close attention in many separated points throughout the government, and that plans are well under way for development of Caribbean production in anticipation of our need next year. The very "hush-hush" Petroleum Reserve Corporation set up under Reconstruction Finance Corporation but now headed by Ickes with E. DeGolyer at the helm, also is understood to be active in other sections of the world where the development of refining facilities will add to the oil supply of the United Nations and lessen the strain on our own industry.

In the East, the ban on pleasure driving was lifted but automobilists were placed on their honor to do no non-essential traveling, a "thank you for nothing" concession which was received with much criticism. However, as OPA agents will no longer stop cars to ask "where are you going — and why?", the parole provision was merely a face-saving gesture which will have no effect on gasoline consumption.

While Ickes, in a radio address, warned that unless Eastern motorists curbed their consumption there might be another gasoline drought and reports came from New England of filling stations running dry, PAW disclosed that shipments of oil and products into the East Coast during the week ended August 28, by all methods of transportation, averaged 1,634,514 barrels daily.

Overall inventories in the area increased to 39.1 percent of normal, it was reported, but gasoline stocks declined by 27,800 barrels a day.

Ickes, with the consent of the War Department, disclosed in his address that the needs of the military services for gasoline alone are running at the rate of 600,000 barrels daily.

Texas automobilists, recently placed under gasoline rationing, are complaining that loaded railroad tank cars with gasoline bills of lading are to be seen moving to California daily and are charging that OPA restricted their driving so that motor fuel could be shipped to West Coast areas which already have surplus supplies, according to reports to Washington. What these critics do not know is that the cars, despite their "gasoline" bills of lading, are carrying, not motor fuel but components for 100-octane which are badly needed by California refineries for the production of aviation gasoline. No motor fuel is moving west from Texas for civilian use, PAW officials say; freight rates and price ceilings make such movement impossible.

Amendment of Supplementary Order No. 5 to PAO No. 11 (formerly M-68-5) which lifted spacing restrictions on wells drilled in shallow areas in Illinois and portions of Indiana and Kentucky, to provide priority assistance to operators in procuring material, is under consideration in PAW.

When closer drilling was authorized, it was predicated on the ability of operators to find materials without priority assistance. An easier supply situation now makes it possible to remove this restriction and grant priorities for tubing and casing. The proposed amendment also will eliminate the requirement for the filing of a statement by the operator with PAW upon completion of a well under the order.

Critical Oil Situation by End of 1943 Unless Price is Raised Says PIWC

Prospects of a serious oil shortage, assertedly due directly to an "arbitrary and inadequate price ceiling," dominated the deliberations of the Petroleum Industry War Council at its September meeting, culminating in a demand for an "immediate and substantial" increase in crude prices.

Told by its committee on petroleum economics that production already is falling behind demand and may be more than 500,000 barrels a day in arrears before the end of next year, the council, recalling that as much as 19 months earlier it had urged a price adjustment, adopted as a resolution urging that action be no longer delayed.

There was considerable speculation as to the reason why War Mobilization Director James F. Byrnes has not yet made good on his promise to publicly report on his investigation of the oil-price situation, the report being that it had been suppressed by the White House.

The discussion in the council indicated that the industry now would not be satisfied with the 35-cent increase originally recommended by Ickes, but feels that a considerably greater increase will be necessary to overcome the disadvantages of loss of manpower, loss of productive capacity and increased expenses of exploration and development which have been the result of the failure to act.

Responsibility for the imperialed situation of the industry was laid squarely on the doorstep of the administration, which has failed to act on Ickes' recommendation and which, by such neglect, it was charged, has failed to properly safeguard the national interest.

Military demand and domestic rationed requirements for oil are already materially in excess of supplies, and through 1944 the apparent deficiency will continue to mount quarter by quarter, the council was told in a report by its committee on petroleum economics.

Based on studies by its working subcommittee, the report voiced the full committee's belief that increasing dependence must be placed on oil resources of sections of the world outside of North America to meet the accelerating pace of military consumption.

The report projected the supply-and-demand situation to the end of 1944, on the assumption that global war will continue throughout this period.

"The effective solution of the transportation problem to which the industry has been largely devoting its efforts, is now clearly in sight," the committee declared, pointing out that most of the lesser pipe line projects have been completed, the Big-Inch is in operation, the first leg of the 20-inch products line will be ready in about a month and run through to Seaboard by next February, and two lines from the Permian Basin in West Texas have been approved and are expected to be in operation by the second quarter of next

year. In addition, it said, the transportation situation has been further improved by the reduced sinking and increased building of tankers.

"But this very improvement in the transportation situation has created the opportunity for increasing the scope and accelerating the tempo of the war," the committee commented, "and by permitting the building up of stocks at strategic locations at home as well as abroad has increased the flexibility and effectiveness of military operations. All this has resulted in demands by the armed forces of unprecedented volume, much greater than previously indicated.

"These demands have begun to create problems of supply which are rendered more difficult by occurring at a time when above-ground stocks of crude and most refined products have been greatly reduced. The situation has been further aggravated by the fact that—as this committee has pointed out previously—such a large part of the petroleum demand of all the United Nations has been allocated to the United States, because of its large available crude supplies and refining facilities and its nearness to the theatres of war, an element of great importance during the period of serious tanker shortage.

"Some relief may be expected from the improvement in the tanker situation and the availability of alternate routes, which should permit the transferring of more of the United Nations' requirements to other oil-producing and refining areas of the world."

Situation Summarized

Outstanding features of the current situation were summarized in the report, as follows:

1. The military requirements now indicated as being required from the United States, plus rationed civilian demand, and domestic industrial requirements, combine to confront the industry with a total demand which will be increasingly difficult to fill from domestic sources. As to gasoline, for example, war demands are presently taking about 31 percent of domestic output and the percentage is steadily increasing.

2. While the military requirements for gasoline have increased by more than 50 percent since January 1 and nearly 150 percent above the average of 1942, new transportation facilities have fortunately kept pace with this demand and no longer constitute a serious bottleneck. However, this unexpectedly large military demand, coupled with civilian gasoline consumption substantially in excess of that which gasoline rationing was designed to achieve, have combined to create a serious situation in that:

(a) Available domestic crude supplies will no longer be able to fill all the prospective demand heretofore assigned to this country.

(b) Refining facilities in most parts of the country are approaching capacity.

(c) Gasoline stocks have been drawn down at excessive rates in the country as a whole, and are at distress levels on the East Coast.

(d) On the other hand, higher crude runs, more use of heavy crudes and of less efficient refining units have resulted in unexpectedly large production and stocks of residual fuels, reversing the situation of last winter.

Supply and demand estimates based on these considerations are shown in the accompanying table.

Projection of Foreseeable Supply, Domestic Ration Requirements and Military Demand and Apparent Deficiencies, Second Half 1943, and Year 1944

By Quarters, in Thousands of Barrels Daily

	1943		1944			
	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Foreseeable Supply:						
Crude Production*	4,185	4,289	4,268	4,321	4,398	4,366
Natural Gasoline and Condensate	264	282	288	283	283	288
Benzol	2	2	2	2	2	2
From Crude Stocks	36	112	143	112	61	59
From Product Stocks†	(104)	107	147	(95)	(136)	(12)
Scheduled Imports	45	8	4	4	4	4
Total Foreseeable Supply	4,428	4,800	4,846	4,627	4,612	4,707
Total Domestic Ration Requirements and Military Demand	4,561	4,915	5,000	4,893	4,935	5,219
Apparent Deficiencies	133	115	154	266	323	512

* Maximum efficient rate except as limited by transportation.
† Figures in parentheses are accumulations, primarily of heating oils, to provide for domestic winter requirements.

The deficiencies indicated in the table, it was explained, occur even though all domestic fields not now producing at their maximum efficient rate are brought to that level as soon as possible, or as soon as transportation is provided from those producing fields not now sufficiently equipped with such facilities, the foremost of which are those of the Permian Basin in West Texas and New Mexico.

It was pointed out that in the table the supply credited to imports reflects only nominal amounts. To reduce the deficiencies indicated in will be necessary to increase imports and/or draw more of the United Nation's supply from foreign sources, if wasteful dissipation of this country's reserves is to be avoided.

"In order that the deficiencies be no greater than those set forth," the committee warned, "transportaion and refining arrangements must be made for refiners to handle during the last half of 1944 about 240,000 barrels daily more West Texas high-sulphur crude of which 54,000 barrels daily is scheduled for October, 1943; 90,000 additional in the second quarter of 1944, which represents part capacity of both the Stanolind Pipe Line Company and Magnolia Pipe Line Company lines and 35,000 barrels additional in the second half of 1944, representing the scheduled capacity of these lines. The remainder will then have to be moved through expanded capacity of then existing pipe lines, by direct tank car movement, or through new line capacity.

"Dislocation as between products will make it necessary for refiners east of the Rockies to adjust yields to make more gasoline, kerosine and distillate fuel, and less residual fuel. In many refineries this cannot be done without interference with war products, of which heavy fuel is a necessary by-product. Also, the marginal refining units which are now having to be brought into operation in order to meet increasing demands cannot in general produce as low yields of fuel oil as the more complete units already operating. It, therefore, appears that government pressure to convert oil burning installations to coal should be suspended, especially in view of the danger of a coal shortage."

In District 5, the committee reported, the projected figures indicate a severe problem of supply, especially in heavy fuel, will develop after the first quarter of next year. With additional available transportation facilities, however, District 4 will find itself in a position to supply some of the demand in adjacent districts.

As a by-product profit, it was pointed out, completion of the pipe line program and the apparent easing of the tanker situation should permit elimination of some of the more inefficient transportation operations, contributing to the saving of manpower, rubber and gasoline, and reducing the burden on the railroads.

Inventories, except for residual fuel, it was found, are at or near minimum levels and cannot be depended upon to supply large portions of the demand after the first quarter of 1944.

"In the light of the foregoing situation," the council was told, "the necessity of avoiding wasteful or unnecessary use of petroleum products is apparent if we are to continue to meet the increasing demands of the military forces. There should be better public understanding of and support for measures designed to avoid wasting products which are so vital to the war effort.

"In view of the very heavy demands for products projected for District 5, the committee again urges that the development of the Elk Hills Reserve in California should no longer be neglected. These reserves are particularly rich in aviation gasoline and fuel oil so necessary for the prosecution of the war.

"In the light of experience, this development can be conducted most speedily and efficiently by the oil industry rather than the government. Either the present negotiation, looking to unitization, should be promptly completed or the government lands should be leased by sections at public bidding subject to unitization. A prompt solution is important to the oil supply of the Pacific area."

The committee also probed the crude situation, reporting that the maximum efficient rate already has been reached in most fields and probably exceeded in a few, the Permian Basin of West Texas, Elk Basin in Wyoming and Montana, and the Elk Hills Naval Reserve being the only remaining areas from which substantial increases in supply may be expected unless new large fields are discovered and promptly developed.

"To exceed maximum efficient rates of production over any great period will

result in dissipation of our underground reserves of petroleum," the committee emphasized. "This must be avoided if at all possible.

"The search for and development of new fields must be accelerated while production from many old fields must also be increased and the related problems of materials supply and manpower must be solved, if this country is to supply a larger portion of the oil needed than is shown in the table.

"The low price of crude oil is becoming more and more a retarding influence in the provision of adequate supplies of this raw material. The critical importance of petroleum in the war economy requires a favorable consideration of the repeated recommendations of PAW for a price stimulus. An immediate increase in the discovery effort is necessary; additional secondary-recovery projects should be commenced and steps taken to prevent premature abandonment of small wells. The low ceiling prices of crude oil in the face of greatly increased costs is generally recognized as the principal obstacle to obtaining adequate supplies of this raw material.

"Estimates for July of this year show total crude oil production in the United States to have been approximately 4,108,000 barrels per day. Contemplated production during the second half of 1943 shows the nation producing an average of 4,239,000 barrels daily with all districts running at about their maximum efficient rates except District 3. This area, however, shows an increase to 2,320,000 barrels average for the second half and 2,380,000 for the last quarter of 1943, against a July average of 2,194,000 barrels, and 1,880,000 barrels daily in 1942."

An accompanying table, prepared by the committee, shows all areas except District 3 producing at or slightly above their maximum efficient rate throughout 1944 while that district reaches its maximum during the second quarter of the year.

A brief survey of the refinery situation showed the major problems facing refiners in Districts 1, 2 and 3 are the handling of increasing quantities of West Texas high-sulphur crude and adjusting yields to increase gasoline and distillate fuel oils and reduce residual fuel oil.

Transportation facilities are increasing, but not more rapidly than indicated domestic and export demand, but available supply has begun to lag behind and will apparently not be able to fill all the facilities which soon will be available, it was pointed out.

This will permit a reduction in the use of certain of the more inefficient methods of transportation in favor of newer and more economical facilities and, with the improvement in the tanker situation making more ships available to haul products direct from refineries instead of by way of the East Coast, the industry should "re-orient its thinking in terms of the shift of emphasis from transportation to supply."

As examples of this necessary shift, the committee cited:

"Railroad tank cars now in service from District 3 to District 1 will be available for other uses, particularly the movement of West Texas crude oil to District 2 refineries which are currently short of crude.

"Estimates of available barge transportation indicate sharp increase over August and it appears that supplies will not be available in 1944 to fill about 45,000 barrels daily of barge capacity to District 1 and 14,000 barrels to District 2. A portion of any surplus of barges might, however, be utilized for intra-district movements in Districts 2 and 3.

"While barge movement is a fairly cheap method of transportation for moderate hauls, it cannot compete with either tankers or pipe lines for relatively long hauls, and with the completion of existing pipe lines there are plenty of barges in sight for all movements on which they can be considered economical of steel and manpower, with the possible exception of needing a few more tugs and barges for some hauls up the Mississippi River.

"Transport trucks have carried a heavy burden during the past year in releasing tank cars from practically all short-haul service when they were so desperately needed to bring crude and products into District 1. As the tank-car situation improves, however, a considerable degree of restoration of normal practice would now appear possible and would conserve rubber and gasoline.

"The most expensive method of transportation to District 1, moving kerosine in drums in box cars, was also necessary during the acute shortage of transportation but should now be discontinued.

"As pointed out by this committee previously, less emphasis should be placed on small savings in tanker time as against hauling products direct from refinery sources to ultimate destinations rather than overloading overland facilities for products to be exported."

On the basis of the report, the council resolution on price warned that unless the shortage of supply is overcome "we must ultimately face further restrictions in essential civilian and industrial uses."

"The declining productive capacity is the direct result of an arbitrary and inadequate price ceiling, established and maintained contrary to the considered judgment of the petroleum industry and the Petroleum Administration for war to whom the President of the United States delegated the responsibility of providing adequate petroleum products," it declared.

The council pointed out that it first recommended a price increase on February 4, 1942, and followed that recommendation with studies and renewed demands in October and November, 1942, and last February.

Since the administrator made his recommendation for an increase, the resolution continued, conditions have changed, and costs of production and exploration have further increased to such extent that "in many instances it costs more to discover and produce a barrel of oil than the price now received."

"The Petroleum War Council again calls attention to the necessity for an immediate and substantial increase in the price of petroleum and its products," it said. "The situation has been permitted to become progressively worse. The inexcusable delay in granting proper price increases from the abnormally low level at which they were frozen has occasioned loss of manpower to other industries, loss of productive capacity, increased difficulties in the discovery and production of petroleum and accentuated restrictions on the use of its products for essential civilian and industrial needs. A price that might have been adequate months ago is now inadequate.

"The national interest is not now being properly safeguarded and remedial steps must be taken without further delay."

Fayette B. Dow Heads ODT Oil Truck Section

Discontinuance of the petroleum carriers section in the division of motor transport and establishment of a tank truck section in the division of petroleum and other liquid transport of the ODT was announced August 30 by Transportation Director Joseph B. Eastman in a move designed to concentrate in one organization all activities connected with oil transport.

The petroleum division, under Director Fayette B. Dow, Eastman said, will be responsible for policies concerning the substitution of tank trucks for tank cars, the mobilizing of tank trucks to meet needs arising out of action or demands of other government agencies, and the conservation of mileage operated by tank trucks, in addition to those policies for which the division has been responsible in the past.

The ODT petroleum advisory committee and consultants will serve under the jurisdiction of Dow's division, except in the administration of mileage-conservation policies, in which instance they will work under the direction of the motor transport division. The motor transport division also will set and administer policies concerning the conservation of tank-truck mileage.

Crude Oil Production Statistics

(Not including Natural Gasoline and Condensate)
Daily Averages in Thousands of Barrels

	1942 Year Average	1943 July Average	1943 SECOND HALF		YEAR 1944	
			Contemplated Production	Estimated *M.E.R.	Contemplated Production	Estimated *M.E.R.
District I	73	69	67	67	64	64
II	1,048	948	932	930	857	861
III	1,880	2,194	2,320	†2,570	2,497	†2,570
IV	114	123	126	124	125	123
V	680	774	794	795	794	794
Total United States	3,795	4,108	4,239	4,486	4,337	4,412

* These are the maximum efficient rate figures used in Report XIV of the Committee on Petroleum Economics dated July 12, 1943. Schedule "C" for Districts I, II, IV and V, which were there defined as "District Production Committees' Estimates." For District III that report used PAW estimates in order to secure national totals. The above indicated figure for District III is that of the District III Production Committee.

† One year beginning May, 1943.

Bureau Estimates 1943 Domestic Crude Oil Demand 6 Percent Up from Last Year

Substantial increases in the available supply of foreign oils from the Caribbean were indicated last week by the Bureau of Mines.

Commenting on the general situation, the bureau said the foreign oils apparently are supplementing our own increased crude supply. The need for such accessions was demonstrated by an estimate that domestic production this year may exceed the 1941 peak by at least 6 percent.

"The total demand for all oils was about 9 percent greater during the second quarter of 1943 than in the same period of 1942," it was stated. "The demand for both motor fuel and fuel oils was considerably larger than had been anticipated. Current trends indicate that the total demand for all oils will reach record levels in the third and fourth quarters of 1943.

"These unexpected demands have resulted in an abnormal seasonal decline in gasoline stocks, a continued steady shrinkage in stocks of residual fuel oil, and in relatively small seasonal gains in distillate fuel oil stocks. Further increments in demand must be met primarily by an expansion in new supplies. The recent sharp rise in domestic crude production and runs to stills is apparently being supplemented by similar gains in the available supply of foreign oils from Caribbean sources.

"In view of present trends, the domestic production of crude petroleum in 1943 may exceed the previous peak record of 1941 by at least 6 percent and crude runs to stills may at least equal the peak of 1941."

The bureau estimated that the market demand for domestic crude this month will average 4,210,000 barrels daily, an increase of 196,900 barrels, or 5 percent, over actual demand in September, 1942. The PAW certification for the month was 4,552,100 barrels daily of all petroleum liquids.

Daily average crude production for the four weeks ended July 31 was 4,111,000 barrels and total runs to stills 3,919,000 barrels, the bureau reported. During that period stocks of domestic crude declined 83,000 barrels daily, indicating a demand for domestic crude of 4,194,000 barrels daily.

By the middle of August, it was pointed out, crude production was substantially above 4,200,000 barrels daily and crude runs to stills had risen to over 4,000,000 barrels daily.

Total demand for motor fuel in September is estimated at 54,500,000 barrels, 5 percent more than the actual in the same month last year.

Stocks of finished and unfinished gasoline of 77,540,000 barrels on June 30 are indicated by American Petroleum Institute figures to have declined approximately 3,930,000 barrels during July and a further decrease of 1,700,000 barrels in finished stocks this month was estimated by the bureau.

Direct sales of natural gasoline and imports are estimated at 2,400,000 barrels, making an indicated refinery production of 50,400,000 barrels which the bureau distributed among the several refinery districts as follows:

East Coast, Inland Texas, Texas Gulf Coast, Louisiana Gulf Coast and Inland Louisiana-Arkansas, 24,000,000 barrels; Appalachian, 1,690,000 barrels; Indiana, Illinois, Kentucky, etc., 10,640,000 barrels; Oklahoma, 2,390,000 barrels; Kansas, 2,690,000 barrels; Rocky Mountain, 1,340,000 barrels; California, 7,650,000 barrels.

Benzol and natural gasoline to be blended at refineries was estimated at 5,160,000 barrels; the application of a yield of 37.7 percent to the straight-run and cracked gasoline production of 45,240,000 barrels gives crude runs of 120,000,000 barrels, or 4,000,000 barrels daily.

Crude oil for exports and to be used as fuel, and losses, was estimated at 7,100,000 barrels, giving an estimated demand for domestic crude of 126,300,000 barrels, or 4,210,000 barrels daily.

OPA Lifts Crude Price At Pickens, Mississippi

In another of its specific price adjustments, OPA on September 3 announced an increase of 17.5 cents per barrel in the ceiling on oil produced in the Pickens field, Mississippi. The increase is to go into effect September 8.

The order provides for a maximum price at the receiving tank for crude of 40 degree API gravity and above of $1.18 per barrel, with customary differentials for lower gravity oil.

The Pickens field currently is a fairly small producer, running from 4,000 to 4,400 barrels daily, and the increase will give producers an additional return of approximately $750 per day. The former sole purchaser of Pickens field crude has agreed to absorb the increase in price and the present one other purchaser is capable of doing so; accordingly, OPA said, the increase will have no effect on the cost of living.

The OPA adjustment brings the ceiling for Pickens field crude to that of oil produced in the Tinsley field, with which it is held to be comparable.

Ickes Warns Danger of "Nation Without Gasoline"

A nation without gasoline was envisioned by Ickes September 1 if the present rate of consumption continues, and in the East, he said, it may be only "a matter of days" before automobiles are halted for lack of fuel.

In a radio address urging the elimination of non-essential driving, Ickes said lifting of the Eastern pleasure-driving ban was only a change in administrative policy and did not mean there was more gasoline available.

Appealing to the public to avert a breakdown in war-essential activities, he disclosed that the armed forces are using 600,000 barrels of gasoline a day and require almost a third of the entire output east of the Rocky Mountains. By next year, he warned, military requirements will mount to 37½ percent of that production.

Reviewing the over-all situation, Ickes reported that consumption in the East is running from 30,000 to 35,000 barrels a day over the 342,000 barrels allotted for civilian use. The Southwest and Midwest are "living on borrowed time" so far as motor fuel is concerned, he commented, and while the Pacific Coast has a "comfortable" supply, "if the people there could know of the military demands that lie ahead when the war in the Pacific really gets under way, they would know that there is anything but comfort ahead."

Pacific Plants to Increase Submarine Fuel Supply

Pacific Coast refiners have been instructed to increase their production of diesel fuel oil of 40 cetane or better by processing all distillate cuts to obtain maximum yield, and to reserve the entire output for military use.

Under Petroleum Directive No. 71, issued September 2 to become effective September 13, all stocks on hand at refineries on the latter date and all production of diesel oil thereafter will be frozen.

The District 5 director of refining is authorized to grant exceptions for sales of diesel fuels up to 45 cetane, but may grant exceptions for sales of 45 cetane or higher only when the military authorities have refused to purchase the product or the fuel is to be used in an engine that cannot operate efficiently on lower cetane fuel.

The directive was issued to assure adequate supplies of diesel fuel for submarine operations in the Pacific.

Mud Exchange Adds Nothing to Gasoline Supply

Texas' Lieutenant Governor John Lee Smith and PAW's Ickes took time out from their multitudinous duties during the month to exchange epithets in a mud-slinging contest over gasoline rationing which splattered but did not clarify the issue.

Smith was the challenger, in a joint letter to Ickes and Brown August 15 in which he charged "the unwarranted cut of 25 percent in gasoline rationing for the Great Southwest, including the richest oil-producing areas of the nation, which you recently issued, is only another instance of bureaucratic bungling which has snarled and confused the war effort on the home front since our very entrance into war.

"In fact," Smith added, "it appears to be nothing more nor less than a cheap political maneuver to appease certain of the politically powerful states on the Eastern Seaboard. It is not in the interest of the war effort but is a specious and stupid gesture wrapped in the sacred folds of the American flag to make it acceptable to a great and patriotic people."

The reasons advanced for expanded rationing, he told the two agency heads, "are about the most stupid, absurd and untenable ever given by persons of pretended intelligence," proved false by the failure to include the Pacific States in the reduction area "when

those states produce less than half of the oil now being produced in Texas alone."

Large quantities of motor gasoline are being produced as a by-product in the making of 100-octane, but are being wasted by the "insane edicts as frequently come forth from your brain laboratories," he charged.

"If you insist that we in Texas have wasted gasoline I remind you that almost half of the gasoline consumed in this state during the past two months was consumed by the federal government, a considerable amount of which was burned in the cars of swarms of petty bureaucrats harassing our people," he asserted.

"It is a terrible thing to shake the peoples' confidence in their government, and such idiotic displays of demoralizing power as you are each presently guilty of, do that very thing. You create confusion, destroy confidence, arouse doubt, and breed waste. * * * If you think this helps our morale, if you think this arouses our admiration for your wonderful bureaucracy you should talk to the people who witness these witless and wanton blunders.

"If this is the type of intelligence directing our civilian war effort then God pity America."

Oiling up his batting arm, Ickes came back 12 days later with a few verbal brickbats of his own.

"Your statements demonstrate either a contempt for truth or an utter ignorance of fact," he told Smith. "I might charitably assume the latter but, frankly, it is discouraging to realize that the lieutenant governor of the biggest oil-producing state of the country knows so little of the problems facing the oil industry and the nation. * * *

"Perhaps you have motives which blind you to the fact that the demand for petroleum products is rapidly rising as our military, agricultural and industrial users step up their activities to meet the increasing tempo of the war. Nor would it probably impress you to learn that out of our total requirements of gasoline the military demand has increased from 12½ percent in 1942 to 30 percent at the present time, and will amount to 40 percent in 1945. As you go vociferously forth, draped in the outer garments of patriotism and the underwear of self interest, please remember that our tanks and trucks and jeeps cannot burn as fuel the crocodile tears that you shed, all the while resisting any reduction in the non-necessitous consumption of gasoline."

Nevertheless, Ickes pointed out that September production will be close to the maximum efficient rates in all areas other than West Texas, and additional transportation is now being built to make that section's capacity available. Furthermore, he said, automotive gasoline stocks at District 3 refineries declined from 17,000,000 barrels on March 31 to 8,900,000 barrels on July 15, and, he told Smith, "consistent with your batting average you are 100 percent wrong" in believing that as production of aviation gasoline is expanded the output of automotive gasoline is correspondingly increased.

"The foregoing are the facts and while they may be of no interest to you, we in the petroleum administration have no choice but to act upon them," Ickes concluded.

Petroleum Reserve Corporation Secretive

An aura of mystery surrounded the program of Petroleum Reserves Corporation last week, but the public was promised it would be given some information as soon as details could be disclosed without jeopardizing the war effort.

Set up by Secretary of Commerce Jesse Jones June 30 as a subsidiary of Reconstruction Finance Corporation (THE OIL WEEKLY, July 5), Petroleum Reserves Corporation was transferred to the Office of Economic Warfare following the Jones-Wallace controversy. Harold L. Ickes—as Secretary of the Interior and not as Petroleum Administrator—is president of the company, the other directors of which are Secretary of State Hull, Secretary of War Stimson, Secretary of the Navy Knox and Director of Economic Warfare Crowley.

Admitting that there has been widespread speculation of the program and activities of the corporation, which has broad powers to acquire and develop petroleum and petroleum reserves outside the United States, Ickes issued a formal statement on the matter August 30.

"I regret that no information can be made public at this time as to the corporation's work," he said. "It is engaged in war activities of a nature requiring secrecy for their success. However, the public will be informed of the scope and nature of its general purposes just as soon as this can be done without imperiling the prosecution of this war in which petroleum plays such a decisive part on all fronts."

Plan Voluntary Campaign To Conserve Fuel

A nation-wide campaign for the voluntary conservation by business and industry of fuel oil and other fuels, power, communications and transportation will be launched before the end of the month by the War Production Board, it was learned this week.

Without any hint of compulsion, every industry and trade in the country will be asked to develop and apply its own program of conservation, based upon the usual operating methods of its members.

There is no immediate prospect of shortages of any of the fuels or facilities which are to be conserved and the whole idea back of the campaign, it was said, will be that the more of these resources we can save the more we will have to throw at the enemy.

While a large part of the country is under heating-oil rations, it is explained that fuel-oil savings can be made indirectly through conservation of electric power and gas, in the production of which considerable amounts of oil are used.

Officials admit that the economies that will be urged upon individual merchants and manufacturers will usually be small, but point out that in the aggregate they will save a large volume of fuel, reduce wear and tear on generating machinery, ease the strain on transportation and conserve manpower.

Government officials have been giving the subject of conservation deep thought for several months, and the groundwork for the campaign was laid some weeks ago at a meeting with representatives of the utility industries at which they were told it would be preferable to avoid the danger of shortages by voluntary industry-directed conservation rather than by the imposition of official restrictions.

PAW to Direct Movement Of Railroad Fuel Oil

Control of fuel oil supplies for railroad use has been vested in the district directors of Districts 2 and 3, who have been authorized by PAW to issue directives establishing rules for delivery of such supplies.

In the exercise of their authority, the district directors were instructed to eliminate cross-hauling, back-hauling and other unnecessary movement to the maximum extent possible, and provide for equitable distribution of available supplies among railroads, giving due consideration to ODT recommendations, consumers' stocks on hand, daily rate of consumption, consumers' storage facilities and ability to handle fuel oil promptly and efficiently.

Where such arrangements do not interfere with efficient use of transportation facilities, supply programs or maximum production of war products, existing and customary supply arrangements shall be maintained and the obligation to supply adequate amounts of railroad fuel oil shall be distributed equitably among all suppliers in the areas affected.

Tanker-Building Record Set in August

All records for construction of tankers were broken in August when 21 oil carriers were delivered, it was disclosed last week in the monthly report of the Maritime Commission. Total of 164 cargo vessels, also a record, was delivered during the month the commission said. Four concrete barges were among the ships completed.

Of the tanker deliveries, six were made by Sun Shipbuilding and Dry Dock Company, Chester, Pa.; four by the Kaiser Company from its Swan Island, Portland, Oregon yard; four coastal tankers by Barnes-Duluth Shipbuilding Company, Duluth, Minnessota; two by Alabama Dry Dock & Shipbuilding Company, Mobile; two by Bethlehem-Sparrows Point Shipyard, Inc., Sparrows Point, Maryland, and one each by Welding Shipyard, Inc., Norfolk, Virginia, Marinship Corporation, Sausalito, California, and Coastal Lancaster Iron Works, Inc., Perryville, Maryland. Three of the concrete barges were delivered by Concrete Ship Constructors, National City, California, and the fourth by Barrett & Hilp, San Francisco.

Easterners Now May Use Gasoline As They Please

Admitting that policing of the pleasure-driving ban in the Eastern States was impossible in the face of increasing public resistance, Price Administrator Brown lifted the prohibition September 1, and retreated to his original policy of last winter of placing automobile owners "on their honor" to do no non-essential driving.

Brown's "strategic retirement," how-

ever, was in fact a retreat from a position rendered untenable by the public's refusal to save its gallon and a half weekly allowance of gasoline for essential use, which had been evidenced by the hordes of cars seen at pleasure resorts and places of amusement and against which the much-resented OPA "snooping" had proven ineffective.

In retaliation for this flouting of his regulations, however, Brown said that increases in rations were remote and would not be granted until the public cut its consumption of gasoline and permitted the building-up of Eastern inventories. No increase will be made, he intimated, before Ickes submits his certification of the amount of gasoline which will be available for civilian use during the final quarter of the year, and then only if PAW grants a substantial increase over the allocation for the current quarter.

Under the system now in effect, it was declared in a joint statement by OPA and PAW, "the holders of ration coupons will be expected to use no more gasoline than is absolutely necessary to meet their essential needs. It will be left, however, to the car owner to determine in his mind and conscience what is essential driving."

PIPE LINE REVIEW

Second West Texas Line Gets Government Approval

With construction of two pipe lines to move West Texas oil given the green light and scheduled for completion by the middle of next year, PAW last week turned its attention to other ways of moving oil from the last area on which dependence can be placed for an increase in supply.

The Magnolia Pipe Line Company line, an 8- and 12-inch tube to run from Seminole, Texas, to Corsicana, with a daily capacity of 42,000 barrels, has been approved by PAW and is pending before the Requirements Committee and WPB, with little doubt as to a quick approval. Stanolind Pipe Line Company's line, to run from the Slaughter field to Drumright, Oklahoma, has been approved and preliminary work is progressing, although construction will not start for several weeks since the new pipe of which it is to be built is to be taken out of fourth-quarter allotments. This will be a 16-inch line, with an initial capacity of 54,000 barrels but capable of being stepped up to more than 100,000 barrels.

It is planned to increase West Texas production by about 240,000 barrels daily by the last half of 1944, with 125,000 barrels of this to move through the two lines. The Stanolind line will feed District 2 refineries, while the Magnolia product is to be refined in Texas, releasing crude for movement through the big inch.

The remaining product will probably move toward District 2 by rail and it is expected that the government will absorb the extra cost of transportation, as it did the cost of moving oil to the East in tank cars, at least until the transportation from the West Texas area is fully organized.

Southeast Demanding Pipe Line Into Area

Southern members of Congress this week prepared to turn the heat on the administration to secure construction of a "victory" oil line to pipe crude from Southwest Texas to half dozen ports in the Southeastern States.

The proposed line which would embrace the Trans-America project from the Tinsley field to Savannah and Charleston, calls for dual 12¾-inch lines, 1,400 miles long to deliver it at Mobile, Alabama, Brunswick and Savannah, Georgia, Charleston, South Carolina, Wilmington, Morehead City and Elizabeth City, North Carolina, and Norfolk, Virginia.

The campaign for the line was announced by Representative Frank W. Boykin of Alabama, who disclosed that a long series of broadcasts throughout the South has been initiated to drum up public support and said the project would be submitted to administration officials when Congress reconvenes. Boykin charged that the Southeast has been "virtually bypassed" in PAW's pipe-line program and asserted that the proposed line would not only be of great advantage in the war and permit the easing of rationing in the East, but also would be of benefit in the postwar development of the South. He stressed the trend "toward pipe lines from ocean tanker transportation" which he said would continue in peacetime "under the amortization program that enables the cost of pipe lines to be disposed of within five years," and ignoring the possibility that we may have a few tankers to put back in service after the war, pointed out that differential in transportation cost between pipe lines and railroads, declaring that "more pipe lines is the answer to the problem."

Shell Refinery Quickly Repaired After Hurricane

Rebuilding of the large cooling tower of the high-octane and toluene unit at Shell Oil Company's Houston refinery, has been completed and the plant is now in full production, according to company officials.

The tower, measuring 50 feet in height and 1000 feet in length, was demolished by the hurricane which struck Houston on July 27. Its collapse also put the generating plant out of commission.

Estimated as a two-month repair job under normal conditions, all work was completed in three weeks, due to cooperation of company employes, manufacturs of the original tower, and railroads, which rushed materials to the job from Los Angeles. Special cars were hooked to passenger trains in order to keep special construction crews on the job 24 hours per day.

Details of the storm damage were withheld until the plant resumed operation.

Mid-Continent Association To Meet in Fort Worth

The Texas Mid-Continent Oil and Gas Association will hold its twenty-fourth annual meeting and convention at Fort Worth on October 13 and 14, according to George Sawtelle of Houston, president of the association.

"Our convention will be streamlined and the majority of our program will be presented on the first day in keeping with our regular practice in former years. Present plans call for an unusual array of nationally prominent speakers who will be announced shortly," Sawtelle said.

"We expect this meeting to bring representatives from the entire oil industry as well as the usual large attendance of Texas oil men. Current industry problems as well as post-war matters will be presented by eminently qualified speakers.

"Oil men are not only invited but urged to be in attendance at this meeting. We can be justly proud of Texas and our oil industry this year for our production is furnishing the bulwark of supplies for the war effort and an intimate presentation of our contribution will be afforded those in attendance."

Petroleum Association Meets in New York

A tentative program is announced for the forty-first annual meeting of the National Petroleum Association which meets in New York, September 21 and 22. Headquarters will be at the Waldorf-Astoria Hotel, with the following scheduled program.

International Aspects of the American Petroleum Industry, by Dr. Joseph E. Pogue; Wartime Refining Processes in Postwar Era, Dr. Gustav Egloff; The War, the Army and You, talks and battlefield pictures by the War Department; Refining, Bruce K. Brown; District 1 Problems, H. W. Dodge and Competitive Enterprise, Dr. Alfred P. Haake.

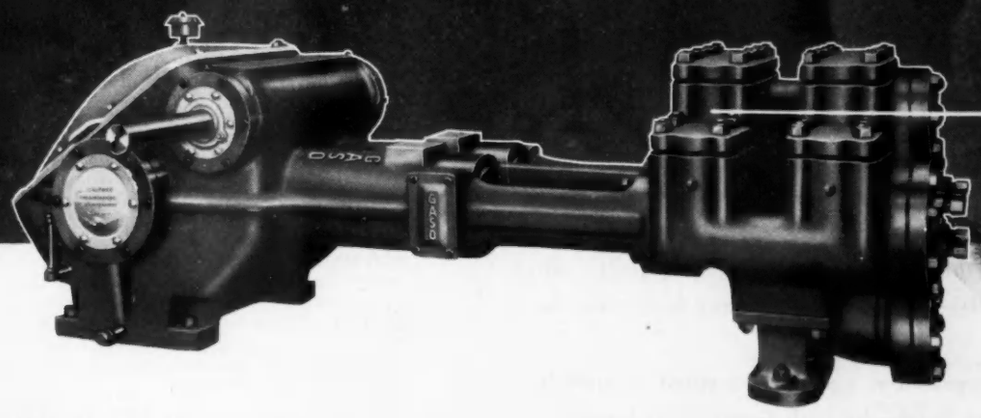
Don L. Carroll Joins The Oil Weekly Staff

Don L. Carroll, for the past 14 years an associate geologist with the Illinois Geological Survey, Urbana, Illinois, has joined the editorial staff of THE OIL WEEKLY. He will have headquarters at Houston. Carroll had been in charge of the survey's public relations, which included general contact work with the petroleum and coal industries, the design and supervision of exhibits for petroleum and coal association meetings, the preparation of speeches and technical articles for members of the survey, and the promotion and dissemination of research results in publications, lectures, talks and sound movies. In addition, he was advisor on research needs of these industries.

California Alarmed Over Federal Acquisition of Land

California state officials last week set themselves to the task of curbing acquisition of state land by the federal government. The lieutenant-governor, state finance director and state controller, as members of the lands commission, met with Carlyle F. Lynton, its executive officer; and, after con-

HEART OF THE WAR MACHINE



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sidering statistics on the situation, initiated formal proceedings to oppose further encroachment.

Lynton stated that if condemnation proceedings of the federal government now in process are carried through it will own almost exactly half the state. Already 41 percent of the total land area of the state is held as federal land.

State lands embraced by Rio Vista gas field were cited as an example of the possibility that the state may suffer loss in the casual gobbling up of its undeveloped areas by federal condemnation. Of Rio Vista's estimated productive area of about 26,500 acres, Lynton stated, the state's participation is some 2500 acres. The state's present estimate of Rio Vista's known recoverable reserves, he said, is 4 to 4½ trillion (4000 to 4500 billion) cubit feet.

Natural Gasoline Output, Stocks Decline in June

Daily average production of natural gasoline and allied products declined in June to 9,873,000 gallons from the May figure of 9,877,000 gallons but remained well above the June, 1942, average of 9,181,000 gallons, it is shown by the monthly report of the Bureau of Mines.

Material gains in Illinois, Oklahoma, Louisiana and California were offset by decreases in the Eastern States, East Texas and the Pandle, the bureau explained, but total production for the first six months of the year was 5 percent above the figure for the same period in 1942, at 1,792,140,000 gallons against 1,713,978,000 gallons.

The bureau showed that June production included 164,892,000 gallons of natural gasoline, against 168,966,000 gallons in May; 51,870,000 gallons of cycle products, against 53,634,000 gallons; 13,230,000 gallons of iso-butane at natural gasoline and cycle plants, against 12,600,000 gallons; 66,192,000 gallons of other liquefied petroleum gasoline at plants, against 70,980,000 gallons; 11,886,000 gallons of liquefied refinery gas at refineries, against 17,136,000 gallons, and 8,400,000 gallons of benzol, the same as in May.

Total stocks decreased by nearly 10,000,000 barrels during June, those at plants and terminals dropping from 118,482,000 to 107,856,000 gallons and those at refineries increasing from 108,612,000 to 109,662,000 gallons.

Form Company To Operate Tankers

A group of oil companies announced last week in New York formation of War Emergency Tankers, Inc., to operate the government's rapidly growing tanker fleet.

The new company plans to subsign ships to its principal subagents, who will use their present staffs for operation and maintenance of the tankers under government direction and regulation.

Companies sponsoring the corporation will be its principal subagents, and include: The Atlantic Refining Company, Pan American Petroleum and Transport Company, Sinclair Refining Company, Socony-Vacuum Oil Company, Standard Oil Company of New Jersey, Sun Oil Company, The Texas Company, Tide Water Associated Oil Company, and Kirlin, Campbell, Kickox, Keating & Morgan.

All-Time Record Refinery Runs of Crude Provide Additions to Stocks of Products

Apparently in reflection of greatly increased imports of Venezuelan crude, refinery runs in the United States were stepped up sharply to a new high level in the week ended August 28, the runs having exceeded by more than 100,000 barrels the previous peak runs of October 1941.

In consequence, there was increased production of each of the major petroleum products, and stocks of both heavy and light fuel oil were increased materially, while there was a less than normal reduction in stocks of gasoline.

Crude oil production in the meantime was down somewhat but still close to this year's high.

Figures of the Bureau of Mines showed that during the week ended August 21 stocks of foreign crude oil jumped to the comparatively large amount of 598,000 barrels, an increase of 484,000 over the 114,000 barrels on hand August 14. It previously had been verified in Washington that some crude oil was coming into the United States from Venezuela, following the long period of little, if any, importations.

While figures are not available separately for the East Coast, daily average runs to stills for the combined East Coast-Southwest districts jumped 173,000 barrels in the week of August 28 to a total of 2,173,000 barrels per day. Presumably, the East Coast accounted for much of this increase.

Supporting this conclusion was the fact that the A.P.I. Index of the East Coast supplies for civilian use rose materially in the week of August 28. The index, indicating stock availability for civilian use and covering gasoline and light and heavy fuel oils, rose to 39.1 percent of normal on August 28, from 36.8 percent on August 21. The low point of 25.5 percent was reached on May 8, 1943. These figures compare with 60.1 percent on September 12, 1942, when the index was started.

In averaging 4,227,000 barrels per day, crude runs to stills represented the use of 87.6 percent of the nation's present refining capacity. That rate was 181,000 barrels a day greater than in the previous week. It was 522,000 barrels, or 14 percent, in excess of the 3,705,000 per day for August 29, 1942. These record-breaking runs give evidence of the heavy wartime requirements for petroleum, especially in view of the curtailments that have been placed on civilian use.

The refineries of the East Coast and Southwest operated in the week of August 28 at 89 percent of capacity. The corresponding figure for other districts included: Appalachian District 1, 83 percent; Appalachian District 2, 121 percent; Indiana-Illinois, 90 percent; Okla-

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED September 4	August 28
Arkansas	76,400	76,300
California	767,400	792,100
Long Beach	31,250	30,600
Midway-Sunset	54,900	55,700
Kettleman Hills	42,000	42,150
Wilmington	92,200	93,300
Rest of State	547,050	570,350
Colorado	7,250	7,000
Illinois	210,350	212,450
Salem	29,300	29,500
Louden	37,450	37,400
Other New Pools	132,550	134,450
Old Pools	11,050	11,100
Indiana	14,750	13,400
Kansas	263,300	297,600
Kentucky	22,850	23,400
Louisiana	355,800	352,150
North	82,050	83,450
South	273,750	268,700
Michigan	56,900	53,100
Mississippi	51,600	52,400
Missouri	95	95
Montana	23,650	22,050
Nebraska	1,850	1,900
New Mexico	105,150	105,100
New York	14,050	14,100
Ohio	9,050	9,000
Oklahoma	324,950	326,200
Oklahoma City	55,100	55,200
Seminole Area	72,450	72,700
Rest of State	197,400	198,300
Pennsylvania	43,200	42,800
Tennessee	30	30
Texas	1,781,100	1,712,800
Upper Gulf Coast	479,250	474,650
East Texas Field	376,300	371,150
Rest of Eastern Texas	130,250	130,150
Lower Gulf Coast	160,400	150,400
Southwest Texas	73,750	72,050
South Central Texas	18,200	17,000
West Texas	300,950	258,400
North Texas	140,750	140,700
Panhandle	101,250	98,300
Utah	10	10
West Virginia	7,650	9,500
Wyoming	96,900	102,100
Total United States	4,234,285	4,225,585

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	[4]4,337	11-22	[4]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[4]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,239	8-14	4,227	8-28	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	72,505	8-14	30,732	4- 3	66,448	8-14

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Runs to Stills Daily	Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gas Oil & Distillate Production Weekly	Gas Oil & Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	3,647	35,966	6,796	77,816
August 29	3,964	3,697	249,007	11,300	80,831	.....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	.....	45,945	.....	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 31	4,133	3,788	238,420	11,127	74,977	3,765	36,363	8,478	66,877
August 7	4,203	3,776	237,382	10,791	73,368	3,677	36,344	7,850	66,714
August 14	4,239	4,004	236,520	11,672	72,505	4,147	36,574	8,158	66,448
August 21	4,218	4,046	236,486	12,134	72,815	4,137	37,464	8,411	66,724
August 28, 1943	**4,196**	**4,227**	.....	**12,420**	**72,525**	**4,351**	**37,928**	**8,732**	**67,250**
August 29, 1942	3,964	3,705	[4]246,307	11,253	79,713	3,850	42,618	6,875	78,270
Change:									
In week	−22	+181	−34	+286	−290	+214	+464	+321	+520
In year	+232	+522	−9,821	+1,167	−7,188	+501	−4,690	+1,857	−11,020
In year	+5.8%	+14.0%	−3.9%	+10.3%	−9.0%	+13.0%	−11.0%	+27.0%	−14.0%

[1] All time peak. [2] Lowest since April, 1923. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, August 22, 1942.

homa-Kansas, 78 percent; Rocky Mountain District 3, 100 percent; Rocky Mountain District 4, 62 percent, and California, 89 percent. Aside from the East Coast-Southwest, only California showed an increase in runs for the week.

Especially welcome was the addition of 526,000 barrels to the stocks of residual fuel oil, which rose to 67,250,000 barrels. They were, however, still 11 million barrels, or 14 percent, lower than a year previously. This addition to stocks was made possible partly by the fact that production for the week was 321,000 barrels greater than in the previous week. The week's output of 8,732,000 barrels was 1,857,000 barrels, or 27 percent, greater than that in the week ended August 29, 1942. The addition to heavy fuel stocks was accounted for by the East Coast-Southwest districts. They added 1,109,000 barrels, and other districts were about unchanged, except California which withdrew 608,000 barrels. The 321,000 barrel increase in production of residual fuel reflected an increase of about that amount in the East Coast and Southwest.

Stocks of gas oil and distillate fuel were increased 464,000 barrels in the week of August 28 and then stood at 37,928,000 barrels. That total was, however, 4,690,000 barrels, or 11 percent, less than the 42,618,000 barrels on hand August 29 last year. This addition to stocks was made possible partly by the increase of 214,000 barrels in production, over the previous week's output. Production of 4,351,000 for the week was 501,000 barrels, or 13 percent, greater than the 3,850,000 barrels produced in the corresponding week last year. The gain in light fuel stocks was accounted for by addition of 628,000 barrels in the East Coast-Southwest, while there were small additions in California and the Rocky Mountain States. Other districts took this product from storage. The only districts which increased production for the week were the East Coast-Southwest regions, which turned out 432,000 barrels more than in the previous week.

Stocks of finished and unfinished gasoline were reduced only 290,000 barrels in the week of August 28, in coming down to 72,525,000 barrels. The latter figure was about 7,000,000 barrels, or 9 percent, under the 79,713,000 barrels held on August 29 last year. Production of gasoline during the week was 286,000 barrels greater than in the previous week in totaling 12,420,000 barrels. That output was 1,167,000 barrels, or 10 percent, above production in the corresponding week last year. While gasoline stocks were reduced, the decrease occurred in California, Rock Mountains, and Oklahoma-Kansas, all other districts having added to storage. The increase in production was largely accounted for by the East Coast-Southwest districts. There were increases in output in the Middle West, Upper Mid-Continent and Rocky Mountain District 4, but production was down in the Appalachian districts and California.

Crude oil production of 4,196,000 barrels per day in the week ended August 28 was 22,000 barrels less than in the previous week but 232,000 barrels, or 6 percent, above the 3,964,000 barrels a day for the week of August 29 last year.

Stocks of crude oil in the United States were reduced 34,000 barrels in the week ended August 21, in spite of the previously mentioned substantial addition to stocks of foreign oil. The 236,486,000 barrels of crude on hand August 21 represented almost 10 million barrels, or 4 percent, less than the 246,307,000 barrels held a year previously. Aside from the increase in foreign crude stocks, there were additions to storage in Kansas, North Louisiana, East Texas, and the Texas Panhandle; but these additions were offset by a large withdrawal in West Texas (1,214,000 barrels) and smaller reductions in several other districts.

Markets Continue Tight; Gasoline Especially Short

Shortages continue to characterize markets in all districts, with gasoline especially hard to obtain. On the East Coast the shortage has remained acute, in spite of the reduction of gasoline rations in the Middle West and Southwest.

Lifting of the restrictions on non-essential driving September 1 on the East Coast was regarded as encouraging, but it remained to be seen if supplies actually would be made available to justify the action. It was believed, in this connection, that conservation of gasoline would be about as effective through reliance on patriotism of car owners, in response to pleas not to use cars except for essential purposes, as it had been under the legal ban on pleasure driving. The ban had proved difficult to enforce, having required stopping of cars to check on the essentiality of their use.

At the middle of the past week there had not occurred any perceptible improvement in the gasoline situation on the East Coast. Many service stations were closed during the two previous week-ends because their pumps were dry. Supplies of kesosene and heating fuel oils, however, were slightly increased.

In the Western Pennsylvania refining district, there is continued extreme scarcity of gasoline. Fuel oils also are closely held, although kerosene is reported easier. Lubricants are in good demand, with neutrals stronger.

Marketers in the Middle West were attempting to build up supplies of gasoline in the latter part of the past week, after having experienced heavy drain on them in the early part of the week, when service stations filled tanks in expectation of higher retail prices in the Chicago area. Refiners in the Middle West have continued short of gasoline, in supplying Eastern demands and continued strong local demand, in the face of reduced rations for motorists.

Production Close to Peak; Texas Increases Sharply

United States crude oil production continued close to the highest level of the year in averaging 4,234,285 barrels daily during the week ended September 4. It was 8700 barrels a day higher than in the previous week.

Texas production was up sharply to 1,781,100 barrels per day from 1,712,800 daily the previous week, an increase of 68,300 barrels. The lower Gulf Coast of Texas was up 10,000 barrels, the upper Gulf Coast about 5,000, the East Texas field about 5,000, and West Texas 42,550.

Arkansas was up to 76,400 barrels daily from 76,300 the week before, Louisiana to 355,800 from 352,150, Michigan to 56,900 from 53,100, New Mexico to 105,150 from 105,100.

Largely offsetting the above increases were important decreases in several states. California was down to 767,400 barrels daily from 792,100 the week before, Illinois to 210,350 from 212,450, Kansas to 263,300 from 297,600, Kentucky to 22,850 from 23,400, Mississippi to 51,600 from 52,400, Oklahoma to 324,950 from 326,200, West Virginia to 7650 from 9500, and Wyoming to 96,900 from 102,100.

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Gravity-Scale Crude Oil Prices in Mid-Continent Fields

Posted in most instances between May 19 and May 21, 1941

GRAVITY	Oklahoma-Kansas		North Louisiana-Arkansas Mississippi					Inland Texas and New Mexico				South Texas		Texas Gulf Coast			Louisiana Gulf Coast						
	Stanolind, Gulf, Texas, Skelly, Barnsdall, Tidewater, Sinclair, Phillips	Carter, Magnolia, Shell	[1]Rodessa, etc.	[2]Champagnolle, etc. Tinsley, Miss.	Bankie, Eola, Ollo, S. Ollo, Little Crk. (by Standard)	Lisbon, La (by Gulf)	[3]Atlanta, Buckner, etc., Ark.	North and West Central Texas	[4]Eastern Texas	Panhandle	West Texas, New Mexico	[5]Refugio Type	[6]Mirando Type	[7]Gulf Coast	[8]Anahuac Type	[9]Dickinson Type	[10]Gulf Coast	[11]Standard of La.	[12]Texas Co.	[13]Texas Co.	[14]Magnolia Pet. Co.	[15]Shell Oil Co.	Jennings (by Gulf)	[16]Rocky Mt. Area (Salt Creek, etc.)
17–17.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....
18–18.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
19–19.9	....	....	....	....	....	....	....	....	$0.80	$0.80	$0.70	$1.08	$1.03	$1.06	$0.98	$0.93	$1.06	....	....	....	.98	$0.99	....	....
20–20.9	$0.85	$0.75	....	....	....	....	$0.68	$0.85	.82	.82	.72	1.10	1.05	1.08	1.00	.95	1.08	$0.90	....	....	1.00	1.01	....	....
21–21.9	.87	.78	....	....	....	....	.70	.87	.84	.84	.74	1.12	1.07	1.10	1.02	.97	1.10	.92	....	....	1.02	1.03	....	....
22–22.9	.89	.81	....	....	....	....	.72	.89	.86	.86	.76	1.14	1.09	1.12	1.04	.99	1.12	.94	....	....	1.05	1.05	....	....
23–23.9	.91	.84	....	....	....	....	.74	.91	.88	.88	.78	1.16	1.11	1.14	1.06	1.01	1.14	.96	....	....	1.08	1.07	....	....
24–24.9	.93	.87	$0.88	$0.86	$1.03	....	.76	.93	.90	.90	.80	1.18	1.13	1.16	1.08	1.03	1.16	.98	....	....	1.11	1.09	....	....
25–25.9	.95	.90	.90	.88	1.05	....	.78	.95	.92 / .97	.92	.82	1.20	1.15	1.18	1.10	1.05	1.18	1.00	....	....	1.14	1.11	....	....
26–26.9	.97	.93	.92	.90	1.07	....	.80	.97	.99	.94	.84	1.22	1.17	1.20	1.12	1.07	1.20	1.02	....	....	1.17	1.13	....	....
27–27.9	.99	.96	.94	.92	1.09	$0.81	.82	.99	1.01	.96	.86	1.24	1.19	1.22	1.14	1.09	1.22	1.04	....	....	1.19	1.15	....	....
28–28.9	1.01	.99	.96	.94	1.11	.83	.84	1.01	1.03	.98	.88	1.26	1.21	1.24	1.16	1.11	1.24	1.06	$1.06	....	1.21	1.17	....	$0.96
29–29.9	1.03	1.02	.98	.96	1.13	.85	.86	1.03	1.05	1.00	.90	1.28	1.23	1.26	1.18	1.13	1.26	1.08	1.08	....	1.23	1.19	....	.98
30–30.9	1.05	1.05	1.00	.98	1.15	.87	.88	1.05	1.07	1.02	.92	1.30	1.25	1.28	1.20	1.15	1.28	1.10	1.10	$1.05	1.25	1.21	....	1.00
31–31.9	1.07	1.07	1.02	1.00	1.17	.89	.90	1.07	1.09	1.04	.94	1.32	1.27	1.30	1.22	1.17	1.30	1.12	1.12	1.07	1.27	1.23	$1.07	1.02
32–32.9	1.09	1.09	1.04	1.02	1.19	.91	.92	1.09	1.11	1.06	.96	1.34	1.29	1.32	1.24	1.19	1.32	1.14	1.14	1.09	1.29	1.25	1.09	1.04
33–33.9	1.11	1.11	1.06	1.04	1.21	.93	.94	1.11	1.13	1.08	.98	1.36	1.31	1.34	1.26	1.21	1.34	1.16	1.16	1.11	1.31	1.27	1.11	1.06
34–34.9	1.13	1.13	1.08	1.06	1.23	.95	.96	1.13	1.15	1.10	1.00	1.38	1.33	1.36	1.28	1.23	1.36	1.18	1.18	1.13	1.33	1.29	1.13	1.08
35–35.9	1.15	1.15	1.10	1.08	1.25	.97	.98	1.15	1.17	1.12	1.02	1.40	1.35	1.38	1.30	1.25	1.38	1.20	1.20	1.15	....	....	1.15	1.10
36–36.9	1.17	1.17	1.12	1.10	1.27	....	1.00	1.17	1.19	1.14	1.04	1.42	1.37	1.40	1.32	1.27	1.40	1.22	1.22	1.17	....	....	1.17	1.12
37–37.9	1.19	1.19	1.14	1.12	1.29	....	1.02	1.19	1.21	1.16	1.06	1.44	1.39	1.42	1.34	1.29	1.42	1.24	....	1.19	....	....	1.19	1.14
38–38.9	1.21	1.21	1.16	1.14	1.31	....	1.04	1.21	1.23	1.18	1.08	1.46	1.41	1.44	1.36	1.31	1.44	1.26	....	1.21	....	....	1.21	1.16
39–39.9	1.23	1.23	1.18	1.16	1.33	....	1.06	1.23	1.25	1.20	1.10	1.48	1.43	1.46	1.38	1.33	1.46	1.28	....	1.23	....	....	1.23	1.18
40 & Up	1.25	1.25	1.20	1.18	1.35	....	1.08	1.25	1.27	1.22	1.12	1.50	1.45	1.48	1.40	1.35	1.48	1.30	....	1.25	....	....	1.25	1.20

[1] Gulf schedule for Caddo, Homer, Haynesville, Bull Bayou, Crichton, De Soto, El Dorado and Rodessa, Texas. Standard of La. schedule for Cotton Valley, Rodessa, Shreveport (Cross Lake), and Caddo. Magnolia schedule for Haynesville, Cotton Valley, Rodessa, and Miller Co., Ark. Texas Co. schedule for "North Louisiana."

[2] Schedule of Standard of La. for Catahoula Lake, Elm Ridge, Hemphill, De Soto, Sabine, Fouke, Homer, Miller Co., Sugar Creek. Schedule of Root Petroleum Co. for Nick Springs, Urbana light, Schuler sweet, Rainbow, South Field (El Dorado), and Champagnolle.

[3] Schedule of Standard of La. for Atlanta, Buckner, Magnolia, Patton, Schuler: Jones sand, Village. Schedule of Root Petroleum Co. for Schuler: Reynolds lime, and Schuler: Jones sand.

[4] Humble schedule for Anderson, Cherokee, Limestone, and Navarro counties and Navarro Crossing field, except that prices from 80 to 92 cents represent postings only for Hawkins field, Wood County. For Talco crude, Magnolia's prices are same as Humble's for Hawkins. Rodessa, Texas, prices are same as in Rodessa, La.-Ark.

[5] Schedule for Refugio, E. White Point, Greta, Melon Creek, Midway, Minnie Bock, O'Connor-McFaddin, Plymouth, Saxet, Taft, and Tom O'Connor.

[6] Schedule for Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (N. and S.), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, and Tesoro.

[7] Humble schedule for Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa new, Raccoon Bend, South Thompsons, Sugarland, Thompsons, Webster. Texas Co. schedule for Ariola, Ganado, Hamman, Hillje, Humble, Kubela, Magnet, Manvel, Markham, Mauritz, Old Ocean, Pickett Ridge, Port Neches, Sour Lake, West Columbia, Withers; except that schedule provides $1.36 top, 34 gravity. Pan American Prod. Co. schedule for Hastings and South Houston. Gulf schedule for Spindle Top, Sour Lake, Lovells Lake, West Beaumont, Goose Creek, South Liberty, Big Creek, Blue Ridge, Fannett, Moore, Barbers Hill, Hankamer, Thompsons, Lochridge, Dyersdale, and Hull (old) crudes. Sun schedule for Barbers Hill, Batson old, Cotton Lake, Esperson below 35 gravity, Goose Creek, Greens Lake, Hull below 25, Humble below 35, Nome, North Dayton below 25, Orange, Saratoga, Sour Lake, South Liberty.

[8] Humble schedule for Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull old and new, Pierce Junction, Red Fish Reef, Turtle Bay fields. Sun schedule for Anahuac, Caplen, and Turtle Bay. Gulf schedule for Anahuac, Hull new, Pierce Junction, Orange and Thompsons deep.

[9] Humble schedule for Dickinson, Gillock, Hardin, League City, and Rowan fields. Pan American Prod. Co. schedule for Gillock crude.

[10] Sun Oil Co. schedule for Bayou Blue, Chacahoula, Fause Pointe, Hackberry (E. and W.), and Vinton. Texas Co. schedule for Bay St. Elaine, Caillou Island, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre for crude ranging in gravity up to 27-27.9; for lighter oils in those fields see Footnote 12. Gulf schedule for Edgerly, Starks, Vinton, E. Hackberry, Cameron Meadows, Leesville. Deduct 10 cents for Gulf's prices for Timballier Bay, Grand Bay, Quarantine Bay, and West Bay. Deduct 2 cents for Standard of La. prices for University (Baton Rouge) crude of 30 to 35.9 gravity.

[11] Standard of La. schedule for Bayou Mallet, Bayou Sale, Choctaw, Darrow, Jeanerette, Lirette, N. Crowley, S. Crowley, Fort Barre, Potash, Roanoke, St. Martinville. Deduct 10 cents for Anse La Butte.

[12] Texas Co. schedule for Bateman Lake, Dog Lake, Fausse Point, Horseshoe Bayou, Jefferson Island, Plumb Bob, Vermilion Bay, West Cote Blanche, and Delta Duck Club. Add 8 cents to these prices for Texas Co. postings for 28 or higher gravity at Bay St. Elaine, Caillou Island, Iberia, Lake Pelto, Leesville, Port Barre, and Lake Barre.

[13] Texas Co. schedule for Delta Farms, Golden Meadows, Lake Salvador. Also Standard of La. for Golden Meadows.

[14] Magnolia schedule for Lockport, Cameron Meadows, West Gueydan.

[15] Shell Oil Co. schedule at Iowa, Black Bayou, White Castle. For Shell's prices at Roanoke and Chalkley fields deduct 5 cents. For Shell's prices at Gibson, South Houma, Hester, and West Lake Verret fields deduct 10 cents.

[16] Sinclair-Wyoming Oil Co. prices at Salt Creek, Lost Soldier, Iron Creek, effective May 20, 1941. Deduct 10 cents for East Mahoney and deduct 20 cents for Mahoney and Werta.

MID-CONTINENT FLAT PRICES

FIELD—	Flat Price	Date Posted
Arkansas:		
Big Crk., Columbia, McKamie, Macedonia, Dorcheat, sour dist.	$1.25	2- 3-43
Dorcheat, Macedonia dist'l.	1.30	11-16-42
Smackover, Heavy	.83	5-22-41
Texarkana sweet distillate	1.40	-42
Louisiana, North:		
Cotton Valley Distillate	1.40	9- 1-41
Cotton Valley (Holloway sn.)	1.25	5-22-41
Lisbon Distillate	1.20	5-22-41
Urania	1.15	5-22-42
Louisiana, South:		
Erath	1.21	5-21-41
Garden Island	1.36	5-21-41
Happytown	1.15	5-20-41
Lafitte, Paradis	1.19	5-21-41
Lake Arthur & Tepetate	1.18	5-21-41
Lake Mongoulois	1.36	5-21-41
Ville Platte	1.30	5-22-43
Nebraska:		
Falls City, in field	.90	8- 1-41
Falls City, in tank cars	.95	8- 1-41
Shubert, in tank cars	.97	8- 1-41
Texas:		
Alice, Benavides (No. Sweden), Ben Bolt, Clark-Muil, Sun and Tom Graham	1.35	5-21-41
Cayuga	.90	5-21-41
Chapel Hill 50° and up	1.25	3-19-42
Chapel Hill below 50°	1.18	1-20-42
Clay Creek	1.00	5-22-41
Cleveland	1.26	5-21-41
Conroe	1.43	5-21-41
Esperson 35° & up; S. Esperson (Sun Oil)	1.30	5-22-41
East Texas, Flag Lake	1.25	5-20-41
Flour Bluff, East Flour Bluff, and La Rosa	1.33	5-21-41
Hockley-Cochran Counties	.87	5-21-41
Livingston, Cleveland	1.25	5-20-41
Long Lake	1.23	5-21-41
Luling	1.05	5-21-41
Lytton Springs	1.17	5-21-41
North Rincon	1.45	2- 3-43
Salt Flat, North Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.14	5-21-41
Satsuma, Tomball	1.40	5-21-41
Sun Oil Co. at Batson (new), Fig Ridge, Hardin, Hull 25 and up, Humble 35 and up, LaBelle, N. Dayton 25 and up, Oyster Bayou, Seabreeze, S. China, W. Orange and Willow Slough	1.25	5-22-41
South Cotton Lake	1.35	5-22-41
Sun, N. Sun, N. Rincon, Garcia	1.35	5-22-41
Van	1.08	5-21-41
Yates (Deep)	.95	5-20-41
Yates (Shallow)	.82	5-20-41
Yturria (Sun in S. Texas)	....	....

MICHIGAN PRICES

Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon, Saginaw	$1.44	5-27-41
Buckeye, Edenville, Bentley, Beaverton, Monitor, Kawkawlin	1.42	5-27-41
Freeman, Lincoln, Sherman Redding, Temple, Winterfield, Trenton Monroe Co., Fork Tws.-Mecosta Co.	1.39	5-27-41
Hamilton-Grout	1.29	5-27-41
Adams	1.27	6- 1-41
Arenac, Clayton, Ogemaw, W. Branch	1.24	5-27-41
Southwest (Shallow):		
Traverse, crude in Allegan, Kent, Ottawa, Van Buren Counties	1.45	6- 2-41
Clare	1.11	5-27-41

MIDDLE WEST PRICES

FIELD—	Flat Price	Date Posted
Lima, Ohio-Ind.	$1.50†	10-28-42
Illinois Basin (Sohio Corp.)	1.37	5-19-41
Lake Centralia-Salem, Illinois	1.37	5-19-41
Eastern Ill.-Western Ind.	1.22	5-21-41
Plymouth, Illinois	1.05	4-28-43
Western Kentucky	1.37	8- 9-43
Birk City, Western Kentucky	1.37	8- 9-43
Kentucky River, Eastern Ky.	1.43	6-19-41
Big Sandy River, Eastern Ky.	1.43	8- 9-43
Cleveland, Lodi, Chatham, Ohio	1.30	9- 1-41

ROCKY MOUNTAIN STATES PRICES

Colorado:		
Canon City and Florence	$1.05	5-21-41
Iles	1.07	5-20-41
Montana:		
Cat Creek	1.15	4- 1-41
Cut Bank (6 Buyers)*	1.05-1.20	3-30-42
Dry Creek	1.02	5-20-41
Sunburst	1.00	5-20-41
New Mexico:		
Artesia	.94	5-21-41
Hogback	1.00	10-11-38
Wyoming:		
Big Muddy	1.08	5-30-41
Byron	.70	3- 4-43
Elk Basin	1.00	5-21-41
Elk Basin, Black	.90	4-28-43
Frannie, Light	.85	2-26-43
Frannie, Heavy	.62	2-26-43
Garland	.60	3- 4-43
Grass Creek, Light	1.00	5- 1-41
Grass Creek, Heavy	.65	4- 1-43
Hamilton Dome	.60	2-26-43
Lance Creek (Ohio Oil Co.)	1.12	7- 1-41
Mill Creek	.72	10-11-38
Oregon Basin	.65	3- 4-43
Osage	1.30	10-11-38
Poison Spider	.65	2-26-43
Rock River	1.15	5-21-41
Salt Creek, Tensleep Heavy	0.8285	2-27-43

*About 25% of Cut Bank crude brings $1.20 per barrel; 65% less than $1.20 and minimum $1.10; and 10% less than $1.10.

†$1.50-price applies to about ¾ of field's production; $1.60 to ¼ of it.

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Current Range (Cents a gal.)		Changes from Month Ago	
Oklahoma Refineries:				
60 Octane and Under	5¼	5¼	+⅛	...
63-66 Octane	5⅝	5⅝	+⅛	...
72-74 Octane	6	6	+⅛	...
78 Octane, Ethyl	6¾	6⅞	...	...
Mid-Western Tank Car:				
60 Octane and Under	5⅛	5¼	...	...
63-66 Octane	5⅝	5⅝	+⅛	...
72-74 Octane	6	6	+⅛	...
78 Octane, Ethyl	6¾	7⅛	...	...
New York Harbor:				
68-70 Octane	9⅛	9⅛	...	...
72-74 Octane	9¼	9⅜	...	...
Gulf Coast, Cargoes:				
60 Octane unleaded	5	5	...	...
65 Octane unleaded	5¼	5¼	...	...
68 Octane unleaded	5½	5½	...	...
70 Octane unleaded	5⅝	5⅝	...	...
63-65 Octane leaded	...	...	...	...
72-74 Octane leaded	6¾	6¾	...	...
Min. 80 Octane leaded	6¾	6¾	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	4⅛	4⅛	+¼	+¼
F.O.B. Br'kenr'ge, Tex.	3¾	3¾	+¼	+¼
KEROSINE				
Oklahoma Refineries:				
41-43 water white	4⅝	4½	...	...
43-44 water white	4⅞	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4⅝	...	...
43-44 water white	4⅞	4⅞	...	...
New York Harbor	7⅛	7⅛	...	...
†Gulf Coast:				
41-43 water white	4¼	4¼	...	...
42-44 water white	4¼	4⅛	...	...
RANGE OIL				
At Oklahoma Refineries	4½	4½	+⅛	+⅜
In Mid-Western Market Group 3, basis	4	4⅛	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 prime white	3⅞	3⅞	...	...
No. 1 straw	3⅞	4	...	...
No. 2 straw	3⅝	3⅝	...	...
No. 3	3½	3½	...	...
Mid-Western Tank Car:				
No. 1 prime white	3⅞	3⅞	...	...
No. 1 straw	3⅝	3⅝	...	...
No. 3	3½	3½	...	...
New York Harbor:				
No. 1	7⅛	7⅛	...	...
No. 2	6⅝	6⅝	...	...
No. 3	6⅝	6⅝	...	...
Gulf Coast, Cargoes:				
No. 3	3¾	3¾	...	...
DIESEL & GAS OILS (Cents per gallon, cargoes, according to Diesel index number)				
Gulf Coast:				
Below 43 diesel index	...	...	...	...
43-47 diesel index	4	4	...	...
48-52 diesel index	4	4	...	...
53-57 diesel index	4	4½	—⅛	...
58 and above	4¼	4¼	...	...

HEAVY FUELS	Current Range (Per Bbl.)		Changes from Month Ago	
Oklahoma Refineries:				
No. 6	...	...	...	...
14-16 Gravity	$0.97	$0.97	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.80	.80	...	...
New York Harbor:				
No. 5	1.95	2.01	...	...
No. 6	1.65	2.07	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$1.27	...	...
New York Harbor	1.65	2.07	...	...
DIESEL OIL, HEAVY (Per barrel, ships' bunkers)				
Gulf Coast, below 28 grav.	$1.35	$1.35	...	...
Gulf Coast 28 grav.	1.65	1.65	...	...
New York Harbor	2.78	2.78	...	...
LUBRICATING OIL (Cents a gallon)				
Oklahoma Refineries:				
Bright stock (viscosity at 210°):				
200 vis. D, 10-25 pour point	27	27	...	...
150-160 vis. D:				
0-10 pour point	23	23	...	...
10-25 pour point	22½	23	...	...
25-40 pour point	23	23	...	...
150-160 vis. E	22	22	...	...
120 vis. D, 0-10 pour point	22	22	...	...
Cylinder Stocks:				
600 s.r. dark green	8½	8½	...	...
600 s.r. olive green	10	11	...	...
631 s.r.	18½	18½	...	...
Neutral Oils (viscosity at 100°, 0-10 pour point):				
Pale Oils:				
60- 85 vis. No. 2 color 8	8	8	...	...
86-110 vis. No. 2 color 8½	8½	8½	...	...
150 vis. No. 3 color	14½	14½	...	...
180 vis. No. 3 color	15	15	...	...
200 vis. No. 3 color	15	15	...	...
250 vis. No. 3 color	16½	16½	...	...
280 vis. No. 3 color	17	17	...	...
300 vis. No. 3 color	18	18	...	...
Red Oils:				
180 vis. No. 5 color	15	15	...	...
200 vis. No. 5 color	15	15	...	...
280 vis. No. 5 color	...	...	...	...
300 vis. No. 5 color	17½	17½	...	...

LUBRICATING OIL (Cents a gal.)			Changes from Month Ago	
Western Pennsylvania:				
Cylinder Stocks:				
600 s.r. filtrable	15	15	...	...
650 s.r.	15½	15½	...	...
600 flash	16	16	...	...
630 flash	17	17	...	...
Bright Stock (No. 8 Color, 145-155 vis. at 210°, 540-550 fl.):				
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	25	...	...
Viscous Neutrals (No. 3 Color, vis. at 70°):				
200 vis. (180 at 100), 420-425 fl.:				
Zero pour test	31½	31½	...	...
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	28	...	...
150 vis. (143 at 100), 400-405 fl.:				
Zero pour test	29½	29½	...	...
10 pour test	28½	28½	...	...
15 pour test	27½	27½	...	...
25 pour test	23	26	...	...

EASTERN STATES CRUDE OIL PRICES

FIELD—	Flat Price	Date Posted
Bradford-Allegany	$3.00	3-26-42
Sw. Pa. Pipe Line	2.65	3-26-42
Eureka Pipe Line, W. Va.	2.59	3-26-42
Corning Grade, Ohio	1.31	5-27-41
Buckeye Crude, Ohio	2.30	6-18-41

MAJOR CRUDE OIL PRICE CHANGES

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....
April 1, 1941	.....	Up 5	.....
April 23, 1941	Up 10	.....	.....
May 19, 1941	.....	Up 10	.....
May 21, 1941	Up 15	.....	.....
June 18, 1941	Up 20	.....	.....
Aug. 14, 1941	Up 23	.....	.....
Aug. 25, 1941	Cut 23	.....	.....
March 26, 1942	Up 25	.....	.....
April 1, 1943	.....	.....	Up ‡25

‡ 14 and 15 gravity.

CRUDE OIL PRICES IN CALIFORNIA

Prices per barrel in field, posted by Standard Oil Company of California, effective May 25, 1943.
All gravities above those quoted take highest price offered in that field.

GRAVITY	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Olinda, Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier, East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, Kern River, Kern Front, McKittrick, Round Mountain	Greeley, Canal, Watco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Elwood Terrace
12-12.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....	$0.94	$0.94	$0.94	....	....	....
13-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....	.96	.96	.96	....	....	....
14-14.9	....	$0.93	....	....	$0.96	....	$0.95	....	$0.95	$0.95	$0.95	$0.97	....	....	.98	....	....	....	.98	.98	.98	....	....	....
15-15.9	....	.96	....	....	1.00	$1.01	.97	....	.97	.96	.97	.97	....	....	*Playa del Rey	....	....	....	.98	.98	.98	....	....	....
16-16.9	....	.96	$1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....		....	....	....	.98	.98	.98	....	....	....
17-17.9	....	.96	1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....		....	....	....	.98	.98	.98	....	....	....
18-18.9	$0.93	.96	1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....	.88	....	....	....	.98	.98	.98	....	....	....
19-19.9	.93	.96	1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....	.88	....	....	$0.98	.98	.98	.98	....	....	....
20-20.9	.93	.96	1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....	.88	....	....	.98	.98	.98	.98	....	....	....
21-21.9	.93	.96	1.01	....	1.00	1.01	.97	....	.97	.96	.97	.97	....	....	.88	....	....	.98	.98	.98	.98	....	....	....
22-22.9	.96	.98	1.02	$0.88	1.00	1.01	.97	....	.97	.96	.97	.97	....	....	.88	....	....	.98	.98	.98	.98	$0.95	....	....
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	.98	....	.97	.98	1.00	.97	....	....	.91	....	....	.98	.99	.98	.98	.95	....	....
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	1.01	....	1.01	1.02	1.03	.97	$0.99	....	.95	....	....	.98	1.03	.99	.98	.95	....	....
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	1.04	....	1.05	1.06	1.07	.98	1.02	....	.99	....	....	.98	1.07	1.01	.98	....	....	....
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	1.08	....	1.09	1.10	1.11	1.01	1.06	....	1.03	....	....	.98	1.11	1.04	.98	....	....	....
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	....	1.01	1.15	1.07	.98	....	....	....
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	....	1.04	1.19	1.10	1 00	....	....	....
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	....	1.07	1.24	1.13	1.02	....	....	....
30-30.9	1.23	1.24	....	....	1.23	1.22	....	1.21	....	....	....	1.15	1.21	1.15	....	$1.01	$1.09	1.10	1.28	1.16	1.04	....	....	FOB
31-31.9	....	....	....	....	....	1.24	....	1.25	....	....	....	1.19	1.24	1.19	....	1.04	1.12	1.14	....	....	1 06	....	....	Ship
32-32.9	....	....	....	....	....	....	....	1.29	....	....	....	1.23	1.28	1 23	....	1.07	1.14	1.17	....	....	1.09	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	....	....	1.27	....	1.26	....	1.10	1.17	....	....	....	1.11	....	....	$1.22
34-34.9	....	....	....	....	....	....	....	1.36	....	....	....	1.31	....	1.30	....	1.13	1.20	....	....	....	1.13	....	....	1.25
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.35	....	....	....	1.16	1.22	....	....	....	....	....	$1.23	1 28
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.39	....	....	....	1.19	1.25	....	....	....	....	....	1.26	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.43	....	....	....	1.22	....	....	....	....	....	....	1.29	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1 47	....	....	....	1.25	....	....	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	....	....	....	....

* Effective April 1, 1943, posted by Union Oil Company of California.

Argentine Oil Demand Only Partially Met; Production Seriously Off

It is anticipated that about half of Argentina's normal demand for petroleum will be filled in 1943, because of virtual cessation of imports and a decline in domestic production, due to shortage of equipment for drilling wells and for working over existing wells.

In 1941, Argentina was the world's fourth largest oil consuming country, having used 33,000,000 barrels, while producing within its borders only 22,500,000 barrels of crude oil and substitutes, or two-thirds of the requirements. Argentina's domestic production in 1942 was about the same as in 1941.

It was estimated that Argentina's oil production in the first quarter of 1943 was only about 77 percent of that in the corresponding period of 1942. Production was expected to decline further as the year progressed, because of the equipment shortage, although industrial requirements for liquid fuel were up sharply.

Under both the present and the former administrations, efforts have been made to obtain drilling equipment in the United States. But there has not been much encouragement in Washington as to the chances of securing the equipment. Under agreements proposed by Argentine officials, present and past, the United States would ship 30,000 tons of drilling equipment to Argentina, which in turn would deliver approximately 2,250,000 barrels of oil to Uruguay, Paraguay and southern Brazil. An advantage to be derived from the agreement by the United States would be the release of half a dozen tankers now engaged in delivering oil to the mentioned countries.

The Argentine government State Oil Monopoly (Y. P. F.) contributed 55,673,343 pesos ($13,918,330) to the national and provincial treasuries in 1942, it is revealed in the lately released annual report of the organization.

The Y. P. F. drilled 72 exploitation wells with a total of 335,747 feet, an average of 4663 feet per well, and perforated 146 exploitation wells, or 10 more than in 1941, according to the report. The company also deepened 46 old wells.

Petroleum production in 1942 reached 2,445,580 cubic meters (15,407,154 barrels), or 218,788 cubic meters (1,378,364 barrels) more than than in 1941. The 35 ships of the Y. P. F. fleet navigated 523,147 miles, or 87,135 more than in 1941. This figure is expected to be considerably higher in 1943, principally due to the recent acquisition of the Teresa Oddero, former Italian tanker which the Y. P. F. recently bought and just received from the Venezuelan government. The Teresa Oddero, 9,000-ton ship, was caught in Puerto Cabello Harbor at the start of the war and seized by the Venezuelan government before it could be scuttled, a fate which four other Italian ships in the same harbor suffered.

Although Y. P. F. production has increased, Argentine production, combined with the small amount received via the pipe-line from Bolivia, falls far short of supplying the nation's current needs. Because of the shortage of coal, usually secured from England, and the lack of adequate tanker space for securing Venezuelan oil, Argentine industry is still limping along on make-shift fuel rations. Locomotives, which burned corn last year, are now using wood. Wheat is also being used as fuel and some Argentine and British coal has begun to arrive in dribbles during the past few weeks. But petroleum must bear the main burden of heating and locomotion.

Where the Argentine feels the pinch is in fuel oil. Only 50 percent of the 1941 supply of fuel oil is available this cold winter, and because of the lack of coal, the demand for oil has been much higher than in 1941.

More intense efforts will be made in the near future to secure higher production from the Argentine and Bolivian fields, although it is probable the Y. P. F. will not be able to secure the necessary machinery for the duration. The government recently agreed to supply 2,250,000 barrels of oil to the neighboring countries in return for drilling machinery from the United States. There has also been talk of devoting Argentine tankers to the Petroleum Pool (of which Argentina is not a part) in return for additional machinery, however, it is not considered probable that the Argentine fuel and gasoline situation will be considerably relieved until free ocean traffic is restored.

Linan and McDuff Join Rubber Reserve

Henry Linan, formerly president of Standard Oil Company of Venezuela, and Homer McDuff, formerly drilling superintendent for that company in Eastern Venezuela, both have accepted positions with Rubber Reserve Corporation, Linan as an executive vice president and McDuff in charge of some special work in Brazil. Linan resigned his position as president of Standard Oil Company of Venezuela several months ago, and McDuff, after being with the company several years in Venezuela, returned to the United States in 1941 and has since that time been in Louisiana and Oklahoma. He left for Brazil last week.

Henry Linan

Homer McDuff

Sinclair Will Expand Terminal in Venezuela

Apparently in line with the current general expansion of oil industry operations in Venezuela, Colombia, and Mexico as a war measure of the United Nations, it is reported that Compania Consolidada de Petroleum (Venezuelan Petroleum Company), subsidiary of Sinclair Oil Corporation, has purchased additional land in Venezuela near its tanker loading terminal near Puerto la Cruz on the Caribbean. It is reported, further, that a refiinery will be erected there.

The Sinclair terminal is fed with crude through a 100-mile 12-inch pipe line of about 30,000 barrels daily capacity, from the Santa Barbara oil field, in the district of Maturin, Monagas state, 10 miles west of the Jusepin field. The pipe line was completed in late July, 1942. Santa Barbara was discovered in February, 1941, and by the end of that year had a dozen producing wells. The production is around 26 gravity, and comes from sand found at 4300 feet. Development was discouraged in 1942 and the first part of this year by the lack of market and the shortage of materials and equipment.

The Santa Barbara production represented the first in Venezuela for the Sinclair interests, and it probably would have been drawn upon in substantial volume, through use of Sinclair tankers, in supplying crude to Sinclair's United States refineries, if war conditions had not interfered, including the Maritime Commission's requisitioning of all United States tankers. Especially would it have been desirable to ship the Venezuelan crude to Sinclair's Marcus Hook (Philadelphia) refinery, which has 45,000 barrels per day crude capacity. Limited quantities of the oil might have been taken also to Sinclair's 60,000-barrel refinery at Houston, although that plant is well supplied with Texas crude.

Reorganization of Creole Petroleum Goes Forward

Reorganization of Creole Petroleum Corporation is going forward, following approval by stockholders of that company and Lago Petroleum Corporation for merging Lago into Creole. The reorganization will simplify the corporate set-up of the company and will accrue benefits to the consolidated company which could not be realized with both companies operating separately, Creole officials have stated.

The reduced earnings reflect decline in sales volume in 1943 and decrease in production. Sales of crude oil and products in the first half of 1943 were 7,626,000 barrels, compared with 15,075,700 barrels in the first half of 1942, with sales revenue off to $8,010,400 compared

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with $13,482,600, realization on sales having been higher this year.

The loss in first half of 1943 is exclusive of the extraordinary cost of surrendered concessions, which to June 30, 1943, amounted to $5,272,400 and which is estimated to total about $7,300,000 after further abandonments are made in July and August.

Creole's operating subsidiary, Standard Oil Company of Venezuela, had crude oil production averaging about 43,866 barrels per day from January 1, 1943, to July 26, 1943.

Shortage of Gasoline In Chile Is Acute

Shortage of gasoline is causing serious difficulties in Chili. Gold mines at Andacollo, northern Chili, have been forced to curtail work. It is indicated, too, that the fishing industry in the south will suffer greatly in coming months if the gasoline shortage continues after the summer season catch increases. The fishing town of Tolton, near Timuco, has been practically cut off from supplies, as the three trucks supplying the locality can make only 1½ trips each month on the amount of gasoline allotted.

Alberta Drilling Active Outside Turner Valley

A total of 25 wells is now being drilled in Alberta, according to the latest report of the petroleum and natural gas conservation board of Alberta.

The drilling wells comprise 14 in Turner Valley and 11 in fields elsewhere in the province. The Turner Valley wells include several in township 19 scheduled to be financed by Wartime Oils Limited, Dominion government concern.

Alberta oil production is running at 25,612 barrels daily compared with 27,584 barrels daily a year ago. The present daily yield comprises 23,917 barrels of crude and 1186 barrels of natural gasoline from Turner Valley and 509 barrels of crude from wells in Alberta outside Turner Valley.

The Alberta yield a year ago comprised 26,599 barrels of crude and 585 barrels of natural gasoline from Turner Valley and 400 barrels of crude from wells outside Turner Valley in the province.

Authority Asked to Raise Canadian Workers' Pay

The Western War Labor Board reserved decision on application of the Standard Oil Company of Alaska for permission to employ Canadians on a war project in the Northwest Territories, Yukon Territory, and Alaska.

The application asked that employes of the Company be allowed a 33 percent increase over the basic wage rate "as many of the men will be working in isolated areas."

Twenty-five percent of the increase would be compensation for the isolation and the remaining 8 percent would be for pensions and other benefits of the company.

Canadian Tar Sands Project Is Held Up

John Irwin of Montreal, chairman of the board of directors of Abasam Oils, Ltd., formed by the Dominion government of Canada to prove or disprove economic feasibility of large scale extraction of oil from the Athabasca tar sands, stated in an interview that: "We should know by next February whether the sands are a flop or of tremendous importance to Canada and the United Nations. We are being held up through the necessity of waiting for materials to build the experimental plant."

Production Increasing in Vermilion Field

Producing wells in the Vermilion field in Alberta have stepped up their output to such an extent that, with no new wells on production, 6,092 barrels of crude oil were produced in June, the last month for which figures have been issued by the Alberta Petroleum and Natural Gas Conservation board.

Considerable increase may be looked for in July and August figures, since many new wells have been completed and put on pump-test in the past two months.

Well Drilling Ahead in Athabasca District

The Deca No. 1 well, being drilled jointly by East Crest Oil Company and Davies Petroleums, in the Athabasca district of Alberta, is now down 350 feet. It is 6 miles to the east of the Deca No. 2 well, which was previously reported to have a flow of 22,000,000 cubic feet of gas daily.

U. S. Field Operations

Illinois Basin

Two Clay County Wells Extend Production

Two Clay County wildcats were completed as producers, both regarded as extensions. Gulf Refining Company appears to have a good producer and pool-opening well in Marion County. A once abandoned outpost to the McKinley field, Washington County, was completed as a light producer.

H. S. Williams' McGee 1, NW NW SE 22-5n-5e, three-fourths of a mile south of the Iola field, Clay County, was completed with an initial test of 158 barrels of oil a day, following a 15-quart shot of nitro in Aux Vases sand at 2348-56 feet. Total depth is 2358. Three locations have been made in the area.

Sinclair-Wyoming Oil Company's Hinterscher 1, NE SE 4-4n-8e, 1½ miles northwest of the one-well Ingraham pool, now abandoned, pumped 42 barrels of oil and 90 barrels of water in its initial 24-hour test of the McClosky at 3018-33 feet, following a 6000-gallon acid treatment. Total depth is 3054 feet.

Marion County: Gulf Refining Company's N. Floyd 1, SE SE NW 25-1n-3e, in the southeastern part of the county, was still testing after swabbing 221 barrels of oil in 24 hours from the McClosky at 2763 feet. The well was acidized with 2000 gallons. The test is the county's first discovery this year.

Washington County: DeKalb Agriculture Company's Hunleth 1, SW SW NE 30-3s-4w, ½ mile west of the McKinley pool, pumped 46 barrels of oil and 8 barrels of water initially from Benoist sand at 1022 feet, following plugback from 1230 feet in St. Louis lime. The well was given an 80-quarter shot. Hunleth 1 was abandoned some time ago but recently was reopened.

Indiana

A. C. Thomas, Bennett Brothers and E. C. Beatty's F. A. Bailey 1, NW SW SE 28-4s-13w, Posey County wildcat 3 miles northeast of New Harmony, is drilling plug to test Waltersburg sand saturation at 2194-2207 feet, which on 1-hour drill-stem test showed 300 feet of clean oil, 180 feet of oil-cut mud and 120 feet of drilling mud and no water in one hour. It is 4 miles east of production in New Harmony pool.

Kentucky

Webster County: W. R. Walters and Oil Carriers, Inc.'s H. L. Cokes-A. J. Melton 1, S½ NW SE 8-N-23, new pool-opener northeast of Poole, was completed in Waltersburg and Tar Springs sands at 1839-53 and 1963-69 feet for initial production of 105 barrels a day, pumping, after perforating Waltersburg.

Union County: Kingwood Oil Company and N. V. Duncan's Betty Deacon 1, SE SE 16-Q-20, wildcat 3 miles north of Uniontown, was abandoned at 2728 feet. Starting at surface elevation of 351 feet, Lower Glen Dean was topped at 2062 feet.

Trans-Tex's Eubank 1, SE 20-O-17, wildcat 5 miles west of Spring Grove, was abandoned at 2929 feet.

Henderson County: Sohio Producing Corporation's Royster 1, 24-O-24, ½ mile north of Robards, is running in rotary for a wildcat start.

Kansas

Bowman Field Extension Produces Lighter Oil

Stanolind Oil & Gas Company has a new field or a major extension of the Bowman area at Bowman 1, NEc SW 22-19-10w, Rice County. Arbuckle lime was topped at 3277 feet and was drilled to 3301 feet. On official test the well pumped 25 barrels of 50.3-gravity oil, slightly lighter than is produced in Bowman field. The new well is 2 miles north of production.

Stafford County: A new field has been proven at Stanolind Oil & Gas Company's Hewitt 1, SE SW 4-21-12w, another location on the broad nosing into this county from Central Kansas Uplift to the northeast. The well has been completed for 388 barrels on pumping test with production coming from Arbuckle lime through perforations at 3464-3475 feet after acid treatment.

McPherson County: Another west extension has been given Lindsborg pool by Dickey Oil Company's Liljestrand 2, NE SW 24-17-4w, west of production on the same lease. Although Viola lime was low at 3443 feet, casing run to 3444 feet was through some good saturation which should produce.

Barber County: Superior Oil Company's Mitchell 1, NW NW SW 15-33-15w, is now drilling below 3500 feet on an anti-clinal feature.

Reno County: Phillips Petroleum Company, discoverer of Hilger North field, producing from Viola lime, is moving in materials for the first offset to the discovery, Manning 1.

Oklahoma

Lincoln County Wildcat Swabs in From Wilcox

Mid-Continent Petroleum Corporation has opened a new Wilcox sand pool at Fowler 1, SW SW NE 33-12-4e, Lincoln County, by making 55 barrels of oil on initial swabbing test. Casing was perforated late in the week with 34 shots between 5542 and 5548 feet in Wilcox sand, total depth being 5562 feet.

Garvin County: Pauls Valley field is being extended this week at three locations offsetting production. Tests are: one by Cities Service Oil Company at the northwest edge of production, another by Ohio Oil Company in the same sector, and one by Phillips Petroleum Company at the southeast edge of the field. The three wells are testing and giving every indication of successful completion to add some 200 acres to the proven productive area.

Seminole County: Ace Gutowsky et al's Madgett 1, NW NE NW 22-10-5e, a wildcat test in the North Searight-Earlsboro area, drilled thin Hunton lime and found some saturation. Operators are drilling on to test the Wilcox sand expected at near 4900 feet, and if dry may plug back to test the Hunton. Viola lime was dry in the well.

British American Oil Producing Company et al's Craddock 1, NE SW NW 29-8n-6e, west of Little River, is a pool opener in Simpson dolomite, producing 15 barrels per hour with some water on swabbing test after a 500-gallon acid treatment through perforations at 4348 to 4353 feet.

Okmulgee County: H. Pierce's Fewell 1, SW SE SW 25-15-11e, in the north Beggs area, has oil standing in the hole from either the Viola or Wilcox sand with top of the latter at approximately 2890 feet and may open a small pool.

Noble County: T. H. Berry & Company's Wood 1, NE SE NW 1-20n-1w has opened a shallow field in Tonkawa sand. The well is producing 135 barrels daily with some water on pump from Sand at 3496 to 3510 feet, hole being bottomed at 3524 feet.

West Texas

Barnhart Operations To Be Expanded

Amerada Petroleum Corporation is preparing to expand operations on its discovery block in the Barnhart field, largest Ellenburger producing area in the Permian Basin, as result of 2 north outposts indicating that the high portion of the structure centers due north of the discovery. The company's Johnson 1, mile north extension and highest well, drilled out cement to 9180 feet in Ellenburger, topped at 8830 feet, and will treat open hole below 8961 feet with acid. This well flowed 197 barrels of oil on 4½-hour test through 1-inch choke after acidizing perforations at 8940-55 feet, while main pay was topped at 9049 feet. The company's Hickman 1, southeast corner of HE&WT Section 4 and ½ mile north of production, was drilling at 8156 feet. The new outpost involves Hickman 1-A, ½ mile north of Johnson 1.

Andrews County: Union Oil Company of California's Biles 1, Clear Fork discovery, 4½ miles northwest of the Fullerton field, flowed 460 barrels of 41.7-gravity oil, with gas-oil ratio of 262/1, on completion gauge through 40/64-inch choke. Production is from perforations at 7259-7441 feet. The well was given 2-stage treatment with a total of 12,000 gallons of acid. The company is moving rig ¼ mile north.

Winkler County: Richardson & Bass' Walton 4, prospective discovery for the Clear Fork lime in the Keystone field, has recemented liner after testing 6,000,000 gas and small amount of oil from perforations at 4680-4850 feet. The firm is preparing to deepen Jenkins-Conoco 3, PSL Section 13, Block 77, from the regular Permian oil zone at 3387 feet to explore the Clear Fork.

Howard County: John B. Hawley,

Jr. and Northern Ordnance awarded contract for drilling of Cook 1, C SE NW T&P 23, Block 34, T-1-N, in starting a 3-well program on 26½-section block in west portion of the county. Information gained from these scheduled regular Permian tests will determine if an Ordovician prospect is to be drilled on the block. In the Vincent pool, Cosden Petroleum Corporation's Jones 1, southeast offset to the discovery pumper in Clear Fork, abandoned after 1100-quart nitro shot at 4407 feet. Coffield & Guthrie's Coffee 1, east offset to the discovery, was drilling dry lime at 3555 feet, and Magnolia Petroleum Company's Winter 1 was drilling at 3395 feet.

Dawson County: Gulf Oil Corporation's Dean 1, Ordovician prospect, was drilling unidentified lime at 7440 feet. Nominal oil showings were passed up at two horizons in the Permian. Penn et al's Wright 1, a 4160-foot failure drilled in 1927, 3 miles northeast, passed up an oil show at 3945-55 feet. Darby Petroleum Company's Harris 1, southwest sector of the county, was awaiting plugging orders after reaching depth contract at 5512 feet.

Irion County: Pure Oil Company's Sugg 1, J. A. Althossen Survey, near the Reagan County line, may be the forerunner of a new shallow pool, having tested 2 barrels of oil and 10 barrels of water in 19 hours from lime at 1999-2007 feet. Top of Yates and lime were called at 1010 and 1700 feet respectively, with elevation of 2397 feet.

Deep tests: Phillips Petroleum Company's Price 1, Southeastern Pecos County, was drilling shale and lime at 12,620 feet, having made 125 feet of hole the past week. This wildcat is within 166 feet of the district's depth record. Averaging only 10 feet of Devonian chert daily, Texas Pacific Coal & Oil Company's Lane 52-A, initial Ordovician test for the McCamey field, was drilling at 6990 feet. Devonian chert was entered at 6450 feet with elevation of 2589 feet.

In Hale County, Amerada Petroleum Corporation's Kurfees 1 was drilling Pennsylvanian shale at 8277 feet with Ordovician as its objective.

North Texas

Clay County Wildcat Showing From Strawn

South-central Clay County has a prospective Strawn discovery in Continental Oil Company's Hilburn 1, Shannon area, which had a small amount oil on preliminary bailing text from broken sand at 4707-22 feet. This wildcat proved dry in Ellenburger at 6200-6515 feet, then set pipe at 4690 feet after plugging back to 4720 feet.

Montague County: Seitz-Comegy's & Seitz's Fleming 1 recorded a southeast extension for the Upper Strawn pay in the Illinois Bend pool in recovering 955 feet of oil on 10-minute drill stem test of sand at 3533-41 feet. Pipe is due to be set for completion. Continental Oil Company's Vaughn 2, northwest outpost, failed to indicate commercial production in the 3500- and 3800-foot sands, and was drilling 4537 feet to explore Ellenburger near the 4950-foot level. Lion Oil Refining Company's Freeman 1, four miles south of Forestburg, entered Bend at 6390 feet, and was drilling at 6670 feet. C. E. Rodgers et al's Neeld-Stanolind 1, 1¼ miles southeast of Fruitland and also an Ellenburger prospect, was drilling shale at 5560 feet, having logged nominal oil shows near the 5000-foot level.

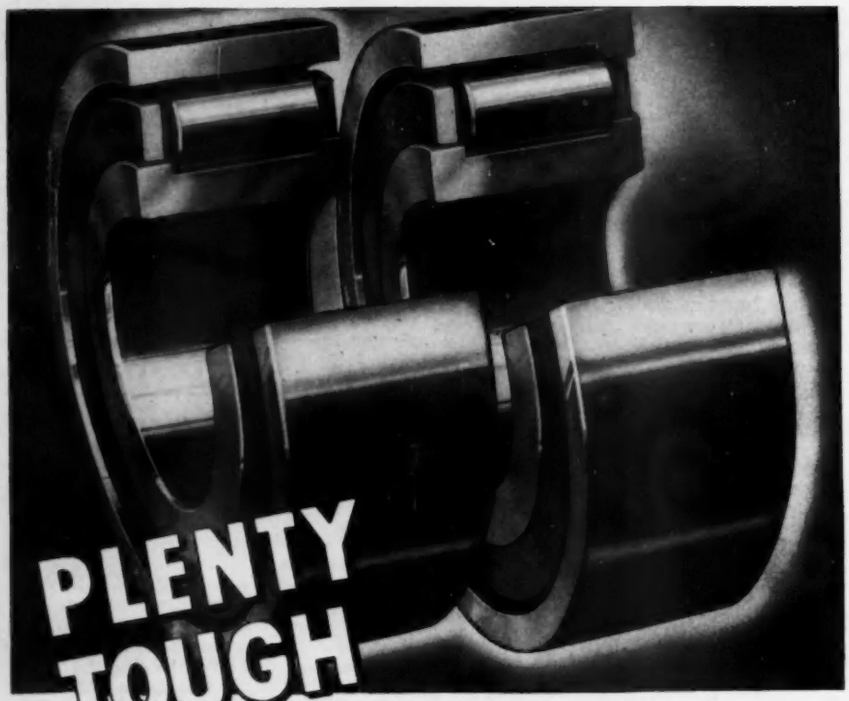
Wichita County: A. R. Dillard et al's Waggoner 1, mile south of West pool, recently opened by Continental Oil Company near Wichita Falls, missed the discovery oil zone, and was drilling shale at 4455 feet. The K-M-A lime section was logged at 4242-4430 feet. Continental Oil Company's West 2, location south of the discovery, was awaiting test of oil sand at 4229-39 feet. Top of sand is six feet low. Ohio Oil Company has authorized two tests on its 100-acre lease that adjoins on the east.

East Texas

Tri-Cities Distillate Field Extended East

The Tri-Cities distillate field, Henderson County, was extended ¾-mile east when Stanolind Oil & Gas Company's Leopard-Tri-Cities 1-C, Jose Y'Barbo Survey, flowed 245 barrels of distillate and 6,250,000 cubic feet of gas through tubing choke from perforations in Rodessa, or Lower Glen Rose, saturation at 7554-88 feet. Acid treatment was underway. This outpost is higher structurally than the 3 previous completions.

Rusk County: The Texas Company has authorized drilling of C. O. Chris-



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Heavy-Duty ROLLER BEARINGS

tian 1, Young Setton Survey and 3 miles west by south of Tatum, to the Travis Peak horizon. Location is 4½ miles south of General Crude Oil Company's 6096-foot Lower Glen Rose failure. American Liberty Oil Company acquired Beacon Oil & Refining Company's Allen 1, 3 miles north of Henderson, and in deepening to Pettit at 7487 feet tested water. Pipe was cemented at 7485 feet.

Kaufman County: Sun Oil Company was due to start running pipe late last week for a production test of Rutledge 1, which logged possible production in coring Smackover lime at 10,042-10,057 feet. Electrical survey placed top of Buckner at 9260 feet, being lower than previous calls, with salt series at 9840-9980 feet. Drill-stem test of the Smackover was ruled hazardous due to 8¾-inch hole. The company plans to drill plugs from casing with bit on tubing, then deepen.

Wood County: Shell Oil Company and Navarro Oil Company's Lee-White 1, south outpost for the Manziel pool, was drilling at 6110 feet in Georgetown, topped at 5250 feet with elevation of 419 feet, being 218 feet low. North extension is being sought by Roger Lacy et al's Shamburger-Magnolia 1, Wm. Barnhill Survey, drilling at 3550 feet, having topped Pecan chalk at 2600 feet. In the Oak Grove area, Jackson-Fisher and Fields' McCarley 1-a, twin to a wildcat junked while trying to complete in Woodbine, topped Pecan chalk at 2979 feet, flat with the original test, and was drilling at 4445 feet. Arch Rowan et al's Garrett 1, 7½ miles southeast of Winnsboro, abandoned in Paluxy water sand at 6859 feet.

Franklin County: Humble Oil & Refining Company, owner of a large lease block on the northwest edge of the New Hope discovery block, will seek a 11,500-foot northwest extension in drilling King 1, Wm. Y. Lancy Survey. Tide Water-Seaboard Oil Company's G. L. Gilbert 1, north offset to their dually-completed discovery, was coring lower pay zone at 7968 feet. The Bacon, or first pay, was logged at 7293-7308 feet, and first pay in the Travis Peak, or Pittsburg sand, was entered at 7914 feet. The partnership's R. L. Gilbert 1, southeast offset to the discovery, was having trouble with surface pipe while bottomed at 7903 feet. The latter logged upper pay at 7288-7300 feet, and possible pay in Hill porosity at 7412-25 feet.

Hunt County: Stanolind Oil & Gas Company's Bickley 1, 1¾ miles southwest of Commerce, was drilling at 5490 feet, having entered Georgetown lime between 4380-4400 feet with elevation of 498 feet.

Southwest Texas

Starr County Activity Yields Two New Fields

Completion of Continental Oil Company's Cameron 1, Starr County, establishes a new field in the Rincon area which promises considerable potential reserve. The well gauged 225 barrels daily of 45-gravity oil, with no water, through a 3/16-inch choke with 600 pounds of tubing and 1100 pounds casing pressure. Carried in reports for several weeks as a possible extension to the Rincon field, the area has now

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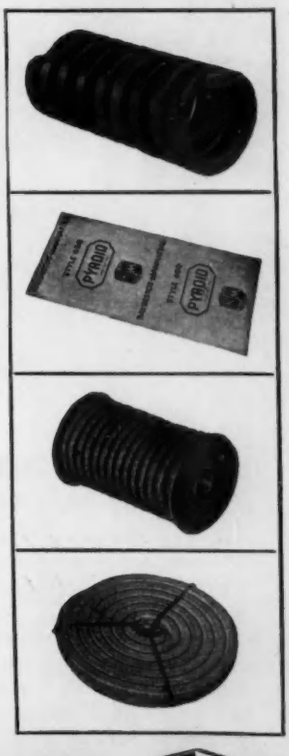

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been re-named, and will be called the Cameron field. The oil is from perforations at 4141-50 feet, the highest sand tested. Location is 1¾ miles north-northeast of the Rincon field.

Opening of another field in Starr County was indicated in Lockhart Oil Company and Davenport's Domingo 2, 10 miles north of Rio Grande City, and 1½ mile south-southeast of the Lockhart field. An oil show was picked up in a stringer sand in the Yegua zone at 4014-21 feet, shale was then logged and the main Yegua topped at 4031 feet. After coring to 4040 feet, a drill-stem test was made at 4032½-40 feet, and the well flowed for 20 minutes, highly oil-cut mud, some clean oil and some salt water. This well is 150 feet lower structurally than the Lockhart field.

Sun Oil Company was preparing to perforate Laurel 3 which, if successful, will extend the North Sun field. This well tried to blow out last week from gas sands at 7340 feet.

Superior Oil Corporation's Riedel 1, 2000 feet north of production in the Slick-Wilcox field, is coring below 7620 feet still in an oil sand and has good indications for a well. Considerable activity is now in progress in this locality, with more scheduled immediately.

Colorado County: Magnolia Petroleum Company's Anderson 1, dual Cockfield-Wilcox discovery 2 miles southwest of Chesterville station, is still testing. On a 7½-hour test, the well flowed from perforations in the Wilcox at the rate of 7,100,000 feet of gas per day through ¼-inch and 3/16-inch chokes and also 27.6 barrels of distillate with tubing pressure of 2310 pounds. Gas output was estimated at 17,000,000 feet per day through 2-inch tubing, open flow. From perforations in the lower Cockfield, the flow was 5,800,000 feet of gas through ¼-inch choke, and 13.8 barrels of distillate, with casing pressure of 2370 pounds. Two-inch tubing flow was calculated at 35,000,000 feet per day. Distillate output from the lower sand is good for about 95 barrels daily, and 50 barrels from the upper sand.

Fayette County: After a show of about ½ barrel per hour, Continental Oil Company's Cockrill 1, southwest edge of the Cistern townsite, sanded up and was being washed down to clean out. Perforation was at 1189-91 feet, and 5½-inch casing was set at 1254 feet, with total depth of the hole at 4498 feet.

Live Oak County: Several new deeper sands are being tested in the Goebel field, with some encouraging shows, but no completions are reported from that area this week.

Zapata County: Bert Hartman 2 being drilled by The Texas Company, about 3½ miles southwest of the Colorado field, was plugged back to perforate, this week, in the 1900-foot gas sand for final completion after a slight show of oil with some salt water, at 2296-2310 feet. A drill-stem test at 1938-44 feet, prior to setting pipe developed 484 pounds pressure and blew dry gas. Indications are for a gas well.

Texas Gulf Coast

Dyersdale West Outpost Extended Quarter West

The Dyersdale West Outpost, in Harris County, appeared good for an extension of more than a quarter-mile westward, with the testing of Reichardt 1, belonging to Edwin Nielson et al. On the first test the well flowed oil for a short time, then started making sand and mud and was squeezed off. Present testing is on gas lift in the regular field sand, from 4069 feet. No gauge is yet available.

In the Bammel area, F. M. Corzelius' Meineke 2 caught fire this week. Several months ago, the test blew out and then cratered around the pipe.

Wharton County: Stewart Boyle and John Mayo are still testing Appling 1, near Louise. It has been reported that a flow of 40 barrels daily on a 7/64-inch choke with lots of gas was obtained earlier in the week. Pressures are reported high, approximately 1400 pounds on tubing and 1700 pounds on casing, with no water present.

At East Bernard, the new sand discovery, Cockburn Oil Corporation's Leveridge Estate 2, J. F. Hamilton survey, was reported turned into the tanks this week. Production is from a sand more than 500 feet above that in the discovery well, recovery being from 7,512-20 feet. Total depth is 9,158 feet. The well is shut in temporarily pending storage construction.

Jefferson County: Considerable attention was attracted to the Lovell Lake area when Humble Oil & Refining Company's Todd 1, completed in November, 1938, blew out this week and ran wild for a time, flowing at the rate of 10,000 barrels, with casing pressure above 1100 pounds. This pressure is considered remarkable, since it is practically the same as when the

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well was completed nearly five years ago. The well was reported as under control late in the week. At the time the well was completed, it flowed 651 barrels daily through a ¼-inch choke, with total depth at 7,719 feet. Sand with total depth at 7719 feet. Sand was topped at 7716 feet.

South Louisiana

Deep Sand Wildcats Active In Several Parishes

Development in the South Louisiana district consisted principally of drilling with no important shows indicated, and no extensions reported. Several wildcats started last week were drilling ahead, aiming at deep sands, mostly below 10,000 feet.

Acadia Parish: Continental Oil Company's Acadia Parish School Board 2, in 16-7s-1w, north of the north flank discovery in the Ritchie field, was reported drilling shale below 5,272 feet.

St. Charles Parish: Gulf Refining Company was preparing to set 5½-inch casing in Delta Securities Company 11, 18-15s-22e, Bayou Couba area, with total depth at 6,696 feet in hard shale. Original contract depth for this test was 12,000 feet.

Evangeline Parish: The Texas Company was testing Ladanois 4-B, on the southwest flank of Pine Prairie dome. This is a Wilcox test, with total depth at 10,538 feet, casing set on the bottom, drilled out to 10,452 feet and perforated.

Beauregard Parish: Sohio Oil Company's Lutcher-Moore 1, Section 34-6s-12w is reported shut in for storage after flowing gas distillate in perforations at 8,014-20 feet.

North Louisiana

Holly Ridge Most Promising Recent Find

A third location for Holly Ridge in the Tuscaloosa zone in Tensas Parish has been made for Union Producing Company's Jurden 1, NE 19-11n-10e. Carter Oil Company is moving in machinery for Shelly 2, SE NW 19-11n-10e. The latter's Shelly 1, SW NE 19-11n-10e, the discovery, is producing from the 8,444-foot level with flow of 387.75 barrels per day on 5/32-inch choke.

Holly Ridge shows indications of being the most important discovery in North Louisiana during the past few years. The Tuscaloosa is a new producing sand for Louisiana and was found in the upper zones of the lower Cretaceous. Major exploration of the zone in Eastern Louisiana and Western Mississippi is indicated.

Important wildcat operations got underway during the week in West Carroll, Bienville, Bossier and Catahoula Parishes. Placid Oil Company has made location for McIntosh 1, SE 22-22n-10e, West Carroll Parish, to be drilled to approximately 6,000 feet. A Travis Peak test in the old Bellevue shallow producing area is planned at the H. E. Rondeau's Murray 1, SE SE 22-19n-11w, Bessie Parish. A scheduled 7,000-foot test is also getting underway in that area at D. C. Richardson's Wurtzbaugh 1, NW 15-19n-11w.

Mid-Continent Petroleum Company has rig up at Jordan 1, SE SW 30-16n-5w, Bienville Parish, and Jim McMurrey has made location for Marks 1, 11-9n-8e, Catahoula Parish.

Big West Drilling Company's Green Unit 1, 10-21n-8w, Lisbon gas field, Claiborne Parish, is to be tested for the company's second completion in that area in the past two weeks. The well produced an estimated 40 to 60 million cubic feet after perforating at 7782-7818 feet.

Arkansas

Little Interest Shown In Drilling Operations

Acreage is being assembled at Bradley, Lafayette County, including town lots and town streets, by Kerlyn Oil Company, with indications of drilling a wildcat in the near future. Bradley was formerly a producing area but there has been no activity there for the past few years.

For the first time in many months no drilling permit was issued for the Arkansas area during the past week, with interest centering on drilling of scattered wildcats at various stages.

Three completions were marked up in the Smart field the third being McAlester's Grayson A-1 SE SW 1-15-20, Nevada County, which was swabbed in from Travis Peak at the 3,400-foot level. Its success gives new interest to the Nevada side of the field and machinery is being moved over to Bannister 1, direct offset.

Mississippi

Madison County Wildcat Shows Oil on Test

Love Petroleum Company's Anderson 2, NE NE 2-8n-1w, Madison County, on a drill-stem test at 4348 to 4367 feet through ¼-inch chokes top and bottom, recovered 2220 feet of clean oil, estimated at 30 gravity, in 15 minutes.

California

Kern County Wildcat May Make Flowing Well

In early stages of swabbing test, Western Gulf Oil Company's Paloma area wildcat, L.A.A. Club 36-1, 1-32-26, Kern County, netted mixed results with some concern lest it prove wet, but finally it began to make heads with increasing proportion of black oil, giving rise to hopes it ultimately will make a flowing well. Geologists are not in agreement whether success with the venture would prove up a new oil pool or a considerable extension of Paloma field. If black oil production is obtained that fact would support the view of those who believe the wildcat has opened an entirely separate accumulation inasmuch as Paloma production is distillate. Bottomed at 11,349 feet, 7-inch pipe is set in the well at 11,060 feet.

Kern County: Union Oil Company has started a wildcat 8-29-25, 2½ miles southwest of Rio Bravo field; Kernco

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We can remember when a new business had a sporting chance. If you made some money you could spend it or expand with it or store it away for hard times. If you lost, you blamed yourself. Autocracy, red tape and confiscatory taxes were things men came to America to escape. After this war our returning soldiers and sailors will be astounded to find free private enterprise devoid of promise. You may question that. You may think it a good omen that so many oil men TRY PELCO FIRST for supplies and equipment, knowing how we feel about America having wandered so far to the left. But a good omen won't stop a catastrophe. Oil men are only a segment of the electorate. Free enterprise in America is on its way out unless an overwhelming MAJORITY of those of us left on the home front condemn the peculiar economy now masquerading as a war-time necessity.

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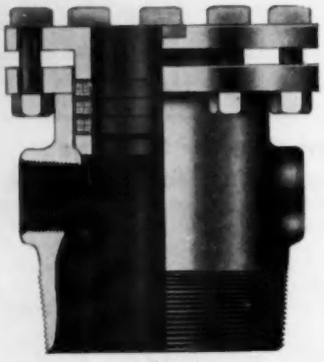

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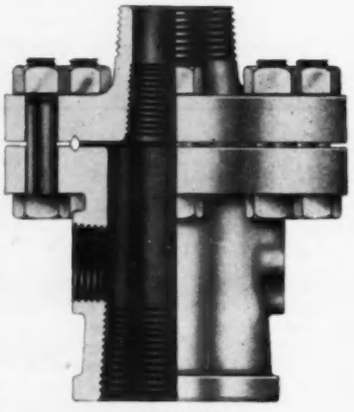

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81-8 NEC 8-29-25. It is projected to 11,000 feet, with Stevens sand as primary objective.

In the McClung area, Continental Oil Company's wildcat KCL G-1, 4-30-26, has found showings sufficient to justify a string of casing, which was run after failure with formation tester. The well yielded showings at 7476-7502 feet, and was plugged back from 8135 feet to 7502 feet.

Showings for a prospective opener of production about a mile southeast of Round Mountain field were made by Bandini Petroleum Corporation's Signal-Mills 1, 24-28-28, after contact with Vedder was made at 2421 feet.

One of the several wildcats now drilling in the shallow Cymric area, Universal Consolidated Oil Company's Sauer Dough 1, 23-29-21, found a sand at 1094 with showings warranting a formation test, but regardless of results from such tests the hole will be carried deeper.

Michigan

Results of Wildcats This Year Disappointing

Michigan entered the final quarter of 1943 without having found a first-rate oil field despite more aggressive wildcatting than in 1942 and with its reserves being drawn on at a rate of 30 to 40 percent faster than replaced by several small new fields. Two fields, both found in 1941, Reed City and Headquarters, were still producing about 45 percent of the total state production in August, with pools found this year producing not more than 4 percent of the total.

A movement is now underway to convince PAW of the desirability of permitting 20-acre spacing in one or more older fields, where the initial pattern was on that basis prior to the federal 40-acre regulations. This type of drilling is not expected to boost the available oil but it might prolong a fast dip in the production of a number of old fields that are being depended on for the bulk of the state's production.

Clare County: Rowmor and Leonards' Miltner 1, S½ SW SE 1-20n-6w, Winterfield Township, following 150-gallon acid treatment, recovered only 78 barrels of oil and cut from 10 percent up of water to materially lessen the wildcat's early pool prospects. It showed Dundee pay from 3834-40 feet. The company plans to equip for pumping but may deepen to 5300 feet to test Sylvania.

Mecosta County: American Production Company's Hamelund 1, SE NW SE 13-15n-10w, Big Rapids Township, completed in the Michigan Stray sand at 1145 feet for a 726,000-foot gas producer and a discovery. It is located about four miles northwest of the old Austin gas field.

TOM D. MAYES, THOMAS J. BEVAN and W. E. BROGAN, JR., announce the opening of Mayes-Bevan, with headquarters at 305 Kennedy Building, Tulsa, Oklahoma. The company will specialize in gravity meter surveys. All three members of the new firm were formerly associated with Magnolia Petroleum Company.

United States Well Completions

ARKANSAS

Union County—Schuler: L. B. Manley's Edwards 2, 2-19s-18w, abnd 2300 ft.

Nevada County—Smart: McAlester's Grayson A-1, se sw 1-15-20, pumper, Travis Peak, td 3400 ft.

CALIFORNIA

Fresno County—Riverdale: Amerada's Young 81-16, ne ne ne 16-17-19, flow 126 bbls from 7890-7900 ft then killed perf 7920-7935, 7900-7910 ft and recompleted, no est, td 7960 ft.

Kern County—Belridge, North: (Old well deepened), Belridge Oil Co's 11-Y-27, se ne nw 27-27-20, flow 148 bbls 34-1-gr, 26/64-in, 140/975 lbs, perf 8444-8873, 9065-9140 ft, brown shale, deep zone 7960 ft, otd 7973 ft, redrilled to 9178 ft.

Kern County—Belridge, South: Belridge Oil Co's 15A-34, nw nw sw 34-8-21, pump, no est, 381 ft perf 725 ft, td 725 ft.

Chanslor Canfield Midway Oil Co.'s B. F. 11-4, sw nw 11-29-21, pump 7 bbls 14.1-gr oil, 3 water, perf 1180-1175, 1110-1105, 1055-1050, 1042-1035, 1010-1000 ft, td 1400 ft.

General Petroleum Corp.'s 48-12, sw se ne 12-29-21, pump 22 bbls 12.2-gr, perf 907-994, 1075-1100 ft, td 1110 ft.

Shell's FKL 63-12, se ne sw 12-29-21, pump 58 bbls oil, 22 water, perf 1119-1083, 1059-1000 ft, td 1120 ft.

Kern County—Buena Vista Hills: Honolulu Oil Corp.'s 16, 440 ft n 1320 ft e swc 2-32-24, pump 29 bbls 26.7-gr, perf 2996-3015, 3040-3059 ft, td 3060 ft.

Kern County—Greeley: Standard's KCL 11-38, ne se ne 19-29-26, flow 1684 bbls oil, 187 water, 28/64 in, 1100/450 lbs, 78 ft perf 11,508 ft, td 11,510 ft.

Kern County — Kern Front: Standard's 55, ne se sw 15-28-27, pump 69 bbls 14-gr oil, 20 water, 175 ft perf 2400 ft, td 2403 ft.

Kern County—Midway-Sunset: Republic Petroleum Co.'s 7-44, ne sw ne 7-32-23, pump 104 bbls 18.6-gr, 152 ft perf 2943 ft, oil sand 2701 ft, td 2943 ft.

Kern County—Mount Poso: Ring Oil Co.'s Bowles 29-25, se ne sw 29-26-28, pump 116 bbls 15.6-gr, 66 ft perf 1715 ft, td 1715 ft.

Los Angeles County—Aliso Canyon: Tide Water Associated's Porter 47, 28-3-16, flow 1022 bbls 23.5-gr oil, 476,000 gas, 16/64-in, 600/800 lbs, perf 8055-8150 ft, td 8276 ft.

Los Angeles County—Del Valle: Ohio's Vasquez 6, ne se sw 17-4-17, flow 72 bbls 65-gr oil, 3,400,000 gas, perf 5324 ft and 5338-5361 ft, td 5525 ft.

Los Angeles County—Inglewood: Standard's Vickers 1-36, 150 ft nly along ely line Vickers 1 lease fr swc Rubel lease thence 416 ft wly at r/a, flow 139 bbls 32-gr oil, 143,000 gas, 12/64-in, 400/1000 lbs, 198 ft perf 8323 ft, td 8541 ft, pd 8325 ft.

Los Angeles County—Wilmington: De Marsh Oil Co.'s Phillips 3, 125 ft n 225 ft e c/1s Mauretania and Figueroa, pump, no est, perf 3080-3135, 3180-3405, 3495-3705 ft, td 3705 ft.

R & S Oil Co.'s Comm. 909-1, 53 ft s 130 ft w c/1s Van Tress and Don Aves, pump 90 bbls 16.2-gr oil, 12 water, perf 3251-3437, 3535-3665 ft, td 3670 ft.

Orange County—Coyote, East: Bartholomae Oil Corp.'s Stern 14, ne sw ne 22-3-10, pump 131 bbls 27.2-gr oil, 55 water, perf 5581-5849, 5906-6053, 6094-6263, 6286-6346 ft, td 6409 ft, pd 6348 ft.

Ventura County—Shiells Canyon: Texas Co.'s Shiells 141, ne se sw 4-3-19, pump 40 bbls 35-gr, 300 ft perf 2898 ft, td 2900 ft.

Ventura County—Ventura Avenue (Old well deepened): Lloyd Corp.'s L. C. 10, 1299 ft n 11,828 ft e c/1 No. 11, flow 1000 bbls, perf 9940-9760 ft, otd 9160 ft deepened to 10,194 ft.

Shell's Taylor 150, 777 ft n 5035 ft w c/1 No. 11, flow 1104 bbls oil, 226 water 610,000 gas, 100/1000 lbs, perf 9057-8529, 8540-8339, 8225-7840 ft, td 9060 ft.

CALIFORNIA WILDCATS

Kern County—Failure: Shell's Utting 45-7, ne ne sw 7-27-19, Shale Point area, stuck drill pipe, abnd 680 ft.

Kern County—Failure: Standard's KCL 12-6, sw sw ne 30-29-26, deepened from old bottom of 11,942 ft in try for Eocene. Basement rock topped 13,610 ft, abnd 13,666 ft.

Santa Barbara County—Failure: Union's Sisquoc Corehole 2, 28-9-31, Tinaquaic area, abnd 2967 ft.

ILLINOIS

Clay County: W. C. McBride's Moench 3, nw nw ne 10-3n-7e, abnd 534 ft.

Texas Co.'s Williams-Risser Comm 1, nw sw se 15-5n-5e, Tar Springs 1891 ft, 12 bbls, 2343 ft.

Franklin County: Lario Oil & Gas Co.'s Franklin City 2, ne sw nw 36-6s-4e, 76 bbls, 3282 ft.

Gallatin County: Cherry & Kidd's Kerwin 13, nw sw sw 11-8s-10e, Clore 1735 ft, 15 bbls, 2075 ft.

Hamilton County: Shell's Morris 3, nw nw se 18-6s-7e, Tar Springs 2343-2412 ft, 262 bbls, 2064 ft.

Shell's Shelton 1, se sw nw 18-6s-7e, 22 bbls, 3117 ft.

Texas Co.'s Wheeler 1, ne sw sw 18-6s-7e, 282 bbls, 2462 ft.

Jasper County: Helmerich & Payne's E. Urfer 1, se se nw 23-5n-10e, abnd 3089 ft.

Gulf's Mosser 2, se nw sw 25-5n-10e, 97 bbls, 2995 ft.

Lawrence County: Sam Mallas' Potts 4, c nw sw 26-2n-12w, abnd 2019 ft.

George Engle's Ridgley-Howling 2, sw nw nw 12-2n-12w, Biehl 1233-45, 50 bbls, 1245 ft.

Smith & Nye's Hovermale-Spidell 3, nw nw se 23-2n-12w, Biehl 1364-85 ft, 55 bbls, 1385 ft.

Marion County: Brown et al's Kabala 1, sw sw se 9-1n-1e, abnd 1702 ft.

Texas Co.'s Snyder 7, c se nw ne 16-1n-2e, Benoist 1900-15 ft, 60 bbls, 1916 ft.

Briscoe et al's McFadden 1, se sw ne 9-2n-3e, abnd 2166 ft.

Richland County: Southwestern O & G Co.'s Conour 1, ne nw nw 34-4n-10e, McC 3090-95 ft, 45 bbls, 3100 ft.

Wabash County: Superior's Vehman 5, ne ne se 8-1s-12w, Cypress 2012-25 ft, 124 bbls, 2025 ft.

Washington County: C. U. Bay et al's Hockgeiger 3, ne nw se 14-1s-13w, abnd 2266 ft.

Wayne County: Ohio Fuel Supply Co. et al's Thomas-Long 1, ne sw 13-2s-6e, McC 3317-20 ft, 34 bbls, 3329 ft.

Robinson & Puckett's Vaughn 2, c sw se 34-2s-8e, McC 3429-33 ft, 14 bbls, 3480 ft.

ILLINOIS WILDCATS

Bond County—Failure: D. Davison et al's Birkenstock 1, ne nw ne 8-4n-3w, abnd 1064 ft.

Clinton County—Failure: Conrey & Rea's Brandt 1, nw ne sw 11-3n-3w, abnd 1131 ft.

Douglas County—Failure: Sam J. Burkett's W. L. Worley 1, se nw nw 31-15n-10e, abnd 1216 ft.

Fayette County—Failure: Skelly's Shricker 1, sw sw se 24-5n-1w, abnd 1652 ft.

John J. Farrelly's Noling 1, sw se ne 21-7n-1w, abnd 1501 ft.

Franklin County—Failure: Smokey Oil Co.'s Franklin City 1, nw sw 35-6s-4e, abnd 3304 ft.

Jefferson County — Oil Discovery: Nash-Redwine's Gilbert 1, ne se nw 25-4s-2e, St. Louis 2999-3011 ft, 10 bbls, 3050 ft.

Jasper County—Oil Discovery: Big Chief Drlg. Co.'s Heap 1, se se sw 28-6n-9e, McC 3108-13 ft, 152 bbls, 3213 ft.

Lawrence County—Failure: E. O. Olds et al's Thompson 1, 20 ft sw of se nw nw 22-2n-12w, abnd 2261 ft.

Richland County — Oil Discovery: Pure's Rusk 1, sw se 19-3n-9e, McC 2964-73 ft, 118 bbls, 3055 ft.

Wayne County—Oil Discovery: Pure's Porter 1, nw sw 23-1s-7e, Rosiclare 3202-10 ft, 12 bbls, 3275 ft.

INDIANA

Gibson County: R. D. Brown's Mahan 1, nw ne sw 36-1s-10w, 37 bbls, 1363 ft.

Jay County: Muehlhausen & Smith's Miller 1, sw½ ne ne 24-22n-14e, abnd 500 ft.

INDIANA WILDCATS

Jennings County—Failure: Commiskey Oil Assoc's Johnson 1, n½ ne ne 23-5n-7e, abnd 1336 ft.

Posey County—Failure: Sinclair-Wyoming's Grein 1, ne ne se 26-8s-15w, abnd 2873 ft.

KANSAS

Barton County—Feltes Area: Winkler-Koch's Weber 1, cen ne sw 12-16s-12w, Lansing 3060 ft, swab 72 bbls oil, lost hole, abnd 3240 ft.

Barton County—Stickney Area: Armer & Vernon's Peach B-1, se ne sw 30-16s-13w, Arbuckle 3440 ft, abnd 3466 ft.

Barton County—Silica: J. H. Hershey's Ernst 1, cen se se 26-19s-11w, Arbuckle 3301 ft, pump 12 bbls oil, 8 water, 3305½ ft.

Cowley County—Rock: Stelbar Oil Co.'s Joslin A-4, se se nw 21-30s-4e, shot 100 qts, pump 200 bbls, 2816 ft.

Cowley County — Henderson: Wakefield's Campbell 3, cen ne se 22-32s-3e, Arbuckle 3436 ft, abnd 3535 ft.

Cowley County — NE. Dexter: Ingling & Parker's Marker 1, nw nw ne 4-33s-7e, 500 gal acid, 8 bbls oil, 400 water, abnd 1520 ft.

Ellsworth County—Stoltenberg: Branine & Goering's Lovia 1, cen sw ne 28-16s-10w, 2000 gal acid, 36 bbls, 3311 ft.

I. W. Murfin et al's Loula 4, cen se se 28-16s-10w, pump 193 bbls, 3285 ft.

Graham County—Morel: Cities Service's Dar-

Wells Completed in the United States in Week Ended September 4, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	2	3
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	2
Arkansas	1	....	....	1	2	....	....	....	....	....	2	3	146	153
California	20	....	....	....	20	....	....	....	3	3	23	34	1,051	503
Colorado	....	....	....	....	....	....	....	....	....	....	....	....	21	8
Florida	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	1	2
Illinois	14	....	....	6	20	....	4	....	7	11	31	45	1,187	1,382
Indiana	1	....	....	1	2	....	....	....	2	2	4	6	170	269
Kansas	15	....	....	8	23	2	3	....	2	5	30	42	1,141	1,118
Kentucky	5	....	....	1	6	....	....	....	1	1	7	13	239	99
Louisiana	5	....	....	....	5	....	1	....	1	2	7	11	434	689
North Louisiana	1	....	....	....	1	....	1	....	....	1	2	2	194	....
South Louisiana	4	....	....	....	4	....	....	....	1	1	5	9	240	....
Michigan	3	2	....	3	8	....	....	1	4	5	13	20	381	473
Mississippi	....	....	....	....	....	....	....	....	....	....	....	2	36	82
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	15	21
Montana	....	....	....	....	....	....	....	....	....	....	....	....	156	142
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	....	27
New Mexico	8	....	....	1	9	2	1	....	2	3	14	9	175	276
New York	10	....	12	....	22	....	....	....	....	....	22	24	810	845
Ohio	5	9	....	10	24	....	....	....	....	....	24	19	614	748
Oklahoma	10	1	....	10	21	3	2	1	9	12	36	46	930	1,005
Pennsylvania	34	3	17	1	55	....	....	....	....	....	55	55	1,863	2,773
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	5	8
Texas	37	1	....	15	53	1	2	....	14	16	70	78	2,763	4,003
E. T. Bor. Co.'s	....	....	....	....	....	....	....	....	....	....	....	....	15	....
East Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	5	....
Rest of E. Texas	....	....	....	....	....	....	....	....	....	....	....	3	150	....
North Texas	3	....	....	5	8	....	....	....	3	3	11	23	668	....
W. Central Texas	1	....	....	1	2	....	....	....	1	1	3	9	252	....
West Texas	16	....	....	1	17	1	1	....	1	2	20	18	604	....
Texas Panhandle	2	....	....	....	2	....	....	....	....	....	2	5	138	....
G. Coast, Upper	5	....	....	2	7	....	....	....	....	....	7	6	220	....
G. Coast, Lower	7	1	....	1	9	....	1	....	7	8	17	11	417	....
Southwest Texas	3	....	....	5	8	....	....	....	....	....	8	3	254	....
S. Central Texas	....	....	....	....	....	....	....	....	2	2	2	....	40	....
West Virginia	2	12	....	3	17	....	....	....	....	....	17	23	434	507
Wyoming	....	....	....	....	....	....	....	....	....	....	....	....	85	60
Total U. S.	170	28	29	60	287	8	13	2	45	60	355	430	12,660	15,198

* Includes distillate wells. † Includes salt water disposal wells.

The OIL WEEKLY'S TRADING POST

USED EQUIPMENT FORUM

CLASSIFIED ADS . . . EQUIPMENT . . . SERVICES . . . PERSONNEL

If you want to buy, sell or exchange good used equipment, a low-cost ad in these columns will get action for you in a hurry. See rates quoted below.

FOR SALE

■ FOR SALE: 1—14 x 12 Gardner Denver Twin Cylinder-Piston Valve Type Roller Bearing complete enclosed oil bath-steam engine mounted on 10 x 12 H Beam steel skids with necessary cross members and braces 20 feet long with National steam separator and trap-force feed oil pump and 6" Badgett steam lubricator for dual oil system-3" Brown throttle valve-22 tooth dual drive split sprocket for 1240 double chain. All the above mounted in unit and completely piped and fitted for steam connection.

2—12 x 12 Oil Well Supply Twin Cylinder Steam Engines mounted-fitted and equipped same as above. Approximate HP 750.

None of these engines needs overhauling or repairs. They are ready to go.

1—OWS 9 x 9 x 9 Drawworks unit with hydromatic brake, double engine drive water cooled drum. Complete with guards and chains.

1—400-ton 8" Ideco swivel complete w/goose neck and lefthand bottom connections.

Other drilling equipment, also 3½" and 4½" O.D. drill pipe for sale. F. H. Brown, P. O. Box 331, Carmi, Illinois.

■ Drilling rigs for sale for cash; or on acceptable terms of credit.

1—Wilson Giant Diesel Rig, with two 225 HP Cummings Diesel Motors, compounded; 14" x 7¼" x 14" Gardner-Denver pump; heavy derrick and heavy equipment entirely suitable for 5500-foot drilling; with or without drill pipe.

1—Diesel Rig, with two 225 HP Cummings Diesel Motors, compounded; 8" Emsco H-46 unitized draw works, with roller bearing drum shaft; 14" x 7½" x 14" new Gumbo Buster pump, made part of one well only; heavy duty OCS clutch; heavy derrick, and everything else about the rig suitable for drilling to 7500 feet; with or without drill pipe.

1—Steam Rig, less drill pipe, with
- 3—125 HP 300-lb. WP Kewanee boilers.
- 2—14" x 7¼" x 18" Wilson Snyder mud pumps, unitized on same skid.
- 1—Unitized boiler feed pump unit, with two 10" x 4½" x 10" pumps.
- 1—12" x 12" Gumbo Buster roller bearing, fully enclosed engine.
- 1—25½" Gumbo Buster, fully enclosed oil bath rotary table.
- 1—9" Acme Unitized Draw Works.

Other items are generally complete, but there may be a few items short.
Both of the diesel rigs described above are now running and can be inspected on the job. Box AA1, c/o The Oil Weekly, Houston, Tex.

■ FOR SALE: Approximately 5000 feet of 4½" left-hand drill pipe; also 6" Kelly with connection for running same.

This drill pipe is made up in doubles of about 45 feet. All tool joints and collars have heavy welds.

Address: Fishing Tools, c/o The Oil Weekly, Houston, Texas.

■ FOR SALE: Lease in Pecos County, 10,000 Barrel monthly production, priced for good investment. P. O. Box 62, Phone 122, McCamey, Texas.

■ FOR SALE: 3 complete Power Rotary Drilling Rigs with approximately 7000 feet 3½" OD Drill Pipe and 12,000 feet of 4½" OD Drill Pipe. All Waukesha, Butane Equipped Motors and Gardner Denver 14 Pumps. These rigs are all running and in good condition. Box 331, Carmi, Illinois.

■ FOR SALE: 3975' of 5-9/16" regular API drill pipe. 1200' Hughes FH drill pipe. 1-3 speed Union Tool Drawworks. General Oil Tool Company, Burrton, Kansas.

■ FARM FOR SALE BY OWNER: Wharton County, 500 acres cultivation, in center of oil producing area. Only sizable tract not leased. Reply Box 60, The Oil Weekly, Houston, Tex.

HELP WANTED

■ WANTED: Men with geophysical experience, also mechanics, parts men, radio men and machinists. Independent Exploration Co., 901 Esperson Bldg., Houston, Texas.

WANTED TO BUY

■ WANTED:
- 1— 7" Cameron 6000-Lb. Test, Pressure Operated, Flow Line Valve
- 1—10¾" Cameron 6000-Lb. Test, Pressure Operated, Master Valve
- 1— 7" Cameron 6000-Lb. Test, Pressure Operated, Blowout Preventer.

We are interested in new or used equipment. Do not offer used equipment unless in perfect operating condition. Quote condition and price. Danciger Oil & Refining Company, Fort Worth, Texas, LD 142, G. B. Magruder, Jr.

OIL INDUSTRY PRINTED FORMS

■ Immediately available all types of printed forms generally used by oil companies. Lease forms, daily production and gauge reports, priority, purchase and emergency order forms, labor time sheets, daily truck drivers reports, material and pipe tally forms, etc. Complete catalog on request. Address Oil Form Dept., Gulf Publishing Company, Houston, Texas.

■ PAW Form MA-3A required under PAW Redistribution Program No. 2. These and more than fifty other printed forms regularly used by oil companies are immediately available from the Stock Form Dept., Gulf Publishing Company, P. O. Box 2608, Houston 1, Texas. Complete catalog on request.

LEASES AND DRILLING ACREAGE

■ Drilling Block 8000 acres fully geologized, geophysical, cored to gas. Oil production probable 3000' depth. Want deal on development proposition. S. W. Pressey, Pueblo, Colo.

■ CONGRESS OPENS oil reservation lands to lease American citizens. It's opportunity to file developing area. Small expense. Write Box 70, c/o The Oil Weekly, Houston, Texas.

NOTICES

■ OIL PRODUCTION OPPORTUNITY—Obsolete production methods will leave two BILLION barrels of oil under water in East Texas oil field.

The long stroke pumping unit discussed on page 50, Oil and Gas Journal of November 19, will recover a substantial part of this oil.

The exclusive right to use the unit in East Texas field is available to one operator or group of operators who are capable of taking operating contracts on and operating a large number of distressed west edge water wells.

The possibilities are interesting. No leasing. No geology. No geophysics. No drilling. No dry holes. No competition. An investment of $5000 per well for long stroke equipment will recover 50,000 to 75,000 barrels of oil. Principals only. J. G. Gillespie, Box 572, Gainesville, Texas.

■ Precision machine shop in Houston would like to contact party or organization which has manufacturing to be done in the Oil Industry. Our entire capacity no longer engaged in war work. Box 65, c/o The Oil Weekly, Houston, Texas.

Did you know that more men exclusively engaged in the drilling-producing business subscribe to **The Oil Weekly** than to any other paper? If you want to buy, sell or exchange good used equipment, a low-cost advertisement in this column will get action for you in a hurry. See rates below.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, THE OIL WEEKLY
P. O. Box 2608 Houston, Texas

nell 1, depth test 3106 ft, fill 2200 ft oil, 3794 ft.

Greenwood County—Virgil: Shaffer & Howell's Sauder B-4, near c se sw 16-23s-13e, Miss 1678 ft, pump 15 bbls, 1705 ft.

Marion County—Lost Springs: Bob Youker's McNichol 3, c w½ ne nw 3-17s-4e, 150 bbls, 2347 ft.

Derby & Harry's Bernhardt 2, ne ne ne 16-17s-4e, Miss 2363 ft, 4 bbls oil, 17 water, abnd 2427 ft.

Marion County—Lost Springs: AFMA Oil Co.'s Dunlap 3, se sw se 23-17s-4e, pump 50 bbls, 2375 ft.

Ring-Mac Oil Co.'s Hajek 5, c w½ se sw 33-17s-4e, pump 50 bbls, 2409 ft.

Ring-Mac Oil Co.'s Jirak 4, c w½ ne nw 4-18s-4e, Miss 2387 ft, 30 bbls, 2417 ft.

McPherson County—Henne: Adair-Morton's Jacobson 1, cen s½ ne se 17-17s-1w, 2000 gal acid, echo test 12,000 bbls oil, 2626 ft.

McPherson County—Crowthers: Westgate-Greenland's Blaine 3, c s½ ne sw 23-17s-1w, 2000 gal acid, depth test 57,000 bbls, 2776 ft.

Pratt County—Carmi: Shell's Knop 2, sw se ne¼ 29-26s-12w, 1500 gal acid, flow 192 bbls oil, 4306 ft.

Pratt County—Carmi: Skelly's Lutes 1, sw nw nw 33-26s-12w, 8500 gal acid, flow 180 bbls, 4311½ ft.

Pratt County — Iuka: Lion Oil & Refg's Baughner 1, cen se sw 2-27s-13w, abnd 4387 ft.

Rice County: Vernon O & G Co.'s Billings-Shaffer 1, nw nw ne 18-14s-13w, abnd 3337 ft.

Russell County — Williamson: Stanolind's Boxberger 4, Lans 2991 ft, 5300 gal acid, perf casing, pump 796 bbls, 3258 ft.

Russell County—Trapp: Stanolind's Letach 5, cen s½ ne se 4-15s-13w, abnd 3355 ft.

KANSAS WELLS DEEPENED

Ellis County—Ellis: Darby's Bittle A-2, cen w½ sw se 31-12s-20w, pump 296 bbls, 3850 ft.

Reno County — Peace Creek: Magnolia's Johnson 2, Viola 3672 ft, 6½ bbls, 3713 ft.

KANSAS WILDCATS

Dickinson County—Oil Discovery: Ingling & Parker et al's Miller 1, c s½ se sw 30-14s-1e, Kansas City 1868 ft, 1000 ft oil in hole 2490 ft.

Pratt County—Oil Discovery: Pryor & Lockart and Geo. Bruce's Massey 1, c se ne 27-30s-15w, Lans 3898 ft, Miss 4440 ft, Viola 4498 ft, perf 4222-4242 ft, 2500 gal acid, pot 3000 bbls, 34-gr, td 4523 ft, pb 4359 ft.

Reno County—Oil Discovery: Phillips' Manning 1, sec nw 34-25s-4w, 259 bbls, 4102½ ft.

Saline County—Failure: Frank A. Shaeffer's Samuelson 1, se ne se 10-18s-2w, abnd 2925 ft.

Stafford County—Failure: Phillips' Crawford 1, swc 10-25s-12w, Lans 3541 ft, lost hole, abnd.

KENTUCKY

Butler County: Cumberland Petroleum Co.'s Brown 12, 8-H-32, 20 bbls, 405 ft.

Hancock County: Geo. Hoffman's Payton Huff 3, 9-P-34, abnd 516 ft.

Henderson County: Cherry & Kidd's Burbank 15, 3-P-21, Cypress 2300-09 ft, 300 bbls, 2309 ft.

Sinclair Prairie's Burbank 5, 4-P-21, Cypress 23-12 ft, 146 bbls, 2312 ft.

Sinclair Prairie's Burbank 14, 4-P-21 Cypress 2316 ft, 2 bbls, 2320 ft.

Union County: Carter's O'Nan 1, 13-0-19, 35 bbls, 1428 ft.

KENTUCKY WILDCAT

Todd County—Failure: R. A. Cullison and H. W. Scott's Garrett 1, 23-F-29, abnd 501 ft.

NORTH LOUISIANA

Claiborne Parish—Haynesville: Midstates Oil Co.'s Lewis 1, ne 28-23n-8w, flowing, no gauge, casing pressure 750, perf 5576-96 ft, td 5658 ft.

NORTH LOUISIANA WILDCATS

Claiborne Parish—Dees Sand Discovery in Homer Field: Frank and George Frankel's Muslow 1, nw 30-21n-7w, 81 bbls oil, 17 percent water, 46.3-gravity, 26/64-in, gas-oil ratio 2070-1, tub pressure 30, casing pressure 550, perf 4284-92 ft.

SOUTH LOUISIANA

LaFourche Parish—Delta Farms: California's Delta Farms 11, 1-17s-22e, 5½-in 9060 ft, perf 9012-48 ft, flow 275 bbls, 9/64-in, gor 815-1, td 9060 ft.

St. Charles Parish—Paradis: Texas Co.'s Branch 1, 39-14s-20e, perf 10,218-23 ft, flow 175 bbls, 3/16-in, gor 603-1, tp 575 lbs, td 11,014 ft.

St. Mary's Parish—Bayou Sale: Humble's Dave Luke 6, 17-16s-9e, 5½-in 10,500 ft, perf 10,416-19 ft, flow 307 bbls, 5/32-in, gor 678-1, tp 1750 lbs, td 10,500 ft.

Terrebonne Parish — Caillou Island: Texas Co.'s State Terrebonne Bay 8, T-23s-20e, 10-ac unit, 5½-in 6828 ft, perf 10/6690-95 ft, drld out to 6715 ft, lp 165 bbls, ⅛-in chk, gor 764-1, tp 1100 lbs, td 6952 ft.

SOUTH LOUISIANA WILDCAT

Rapides Parish: Moran Oil Co.'s Meeker 1, sw c 7-1n-1e, Wilcox 7205 ft, pipe collapsed, abnd 8142 ft.

MICHIGAN

Missaukee County — Prosper: Freeman Oil Co.'s State A-1, s½ ne nw 26-22n-6w, abnd 3877½ ft.

McClanahan Oil Co.'s State 1, s½ nw ne 26-22n-6w, Dundee lime, abnd 3870 ft.

Missaukee County—Cranberry Lake: Taggart Bros. Co.'s State S-21, c se 35-21n-6w, Stray sand, 2,740,000 gas, 1326 ft.

Montcalm County—Six Lakes: Leslie T.

A LETTER FROM A BIG WAR MANUFACTURER

Parts of the letter are deleted because they refer to war work

"Attention: Mr. H. W. Dedman, President.
"My dear Mr. Dedman:

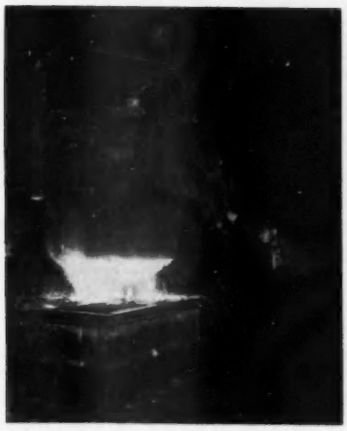
"This letter is one of commendation and appreciation relative to the very fine piece of work you are doing for us on our steel castings.

"In these days it is a relief to work with an outfit who understands their obligations to a promised date of shipment, and who has looked into our problems so carefully as your own selves.

"We are very much pleased with the castings—they are coming along in excellent quality, and the deliveries according to your promised dates of shipment.

"We are particularly pleased with the way you worked out our problems on the big . . .

"If it will gratify you any, we are glad to have you know there is another concern who is working on the same type as ours, and who have not been able to find a foundry that would cast these . . . in one piece."



QUALITY ELECTRIC STEEL CASTINGS

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DEDMAN
FOUNDRY & MACHINE CO.
HOUSTON, TEXAS

LOCKETT-WORTHINGTON
POWER-DRIVEN
PUMP UNIT

Type KLS
10-Inch Stroke

WORTHINGTON Pumps and *genuine* Worthington Repair Parts are available — through Lockett Dealers — from Warehouses maintained in the principal oil fields throughout Texas and Louisiana, backed up by a large replenishing stock at our Houston and New Orleans Warehouses. This enables Lockett Dealers to promptly supply needed equipment. Worthington Pumps are adaptable for use with Engines or Motors of any specified type or manufacture, to provide a complete pumping unit.

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NEW ORLEANS HOUSTON DALLAS

SPERRY-SUN

Better To Be Safe Than Wrong

Anything less than the best in well surveys is poor economy. The assurance of speed, accuracy and more profitable operation warrants the use of Sperry-Sun Surveying Devices and Technical Services.

SURWEL Clinograph	H-K Single Shot
SYFO Clinograph	M-M-O Bottom Hole Orientation
E-C Inclinometer	K-K Whipstock
H-K Inclinometer	Polar Core Orientation

SPERRY-SUN WELL SURVEYING CO.

PHILADELPHIA, PA.
HOUSTON, TEXAS LONG BEACH, CALIF.

Barber's Thornbury 1, se sw sw 8-12n-7w, abnd 1310 ft.

Newaygo County—Woodville: Ohio Oil Co.'s Gas Unit 4, c sw 29-15n-11w, Stray sand, gauged 19,000,000 ft, td 1211 ft.

Van Buren County—North Bangor: Socony Vacuum's Adaskevich 2, ne sw sw 9-2s-16w, Traverse lime, pump 60 bbls, 1018 ft.

Van Buren County—South Columbia: Harris Oil Co.'s Pepper 11, se sw nw 24-1s-15w, Traverse lime, pump 97 bbls, 1162 ft.

Van Buren County—New Geneva: Socony Vacuum's Smith 1, sw se se 24-1s-16w, Traverse lime, pump 55 bbls, 1097 ft.

MICHIGAN WILDCATS

Clare County—Failure: C. W. Teater's Gilmore 1, s½ se se 14-18n-6w, Dundee 3914 ft, abnd 3984 ft.

Lake County — Failure: C. L. Maguire's Keiser 1, sw sw sw 16-17n-12w, Dundee 3203 ft, Monroe 3275 ft, abnd 3385 ft.

Mecosta County—Big Rapids Gas Field Discovery: American Production Co.'s Hamelund 1, se nw se 13-15n-10w, Stray sand 1140 ft, pay 1142-44 ft, water 1145 ft, td 1150½ ft, pb to 1145 ft, 726,000 ft gas.

Midland County—Failure: H. C. Nelson's Miller 1, s½ sw se 12-16n-2e, Dundee 3343 ft, abnd 3585 ft.

Osceola County—Failure: H. H. Coffield's Schwaim 1, ne se se 22-17n-10w, Dundee 3674 ft, abnd 3801 ft.

NEW MEXICO

Eddy County: Carper Dr. Co.'s State-Shugart 1, c nw nw 36-17s-30e, flow 260 bbls, 2-in, shot 70 qts 3309-39 ft.

Fren Oil Co.'s Friess 1, c sw se 19-17s-31e, flow 46 bbls, 2-in, shot 80 qts 1920-80 ft, td 2040 ft.

Nash-Windfohr and Brown's Jackson 9-B, c se nw 25-17s-30e, flow 350 bbls, 2-in, shot 200 qts 3185-3247 ft.

O. H. Randall et al's State 2, c sw ne 2-17s-30e, flow 125 bbls, 2-in, shot 400 qts 2760-3083 ft.

Skelly's Dow 5-B, c nw ne 21-17s-31e, pump 97 bbls, shot 120 qts 3570-3618 ft, td 3638 ft.

Lea County—Lovington: Stanolind's State 10-E, c nw ne 2-17s-36e, white lime 4680 ft, flow 66 bbls, 2-in, acid 9500 gals 4765-5045 ft.

Lea County—Lynn: Continental et al's Dancigar 2-A-8, c se se 8-23s-36e, 72 bbls oil, 144 water, gas lift, 3655-3718 ft.

Lea County—Rhodes: Anderson-Prichard's State-Ohio 2-A-28, c sw ne 28-26s-37e, salt 1293-2834 ft, abnd 3350 ft.

Texas Co.'s State 4-B, c sw nw 16-23s-36e, elev 3474 ft, flow 230 bbls oil, 11 water, acid 2000 gals 3620-3730 ft.

NEW MEXICO WELLS DEEPENED

Eddy County—Sunray: Superior's Foster 2, 17-17s-31e, flow 18 bbls, 2-in, shot 200 qts 3431-82 ft.

Lea County—Maljamar: Kewanee Oil Co.'s Mitchell 4, c sw sw 18-17s-32e, otd 3677 ft, flow 60 bbls, 2-in, shot 530 qts 3750-3980 ft, td 4083 ft, pb to 4016 ft.

NEW MEXICO WILDCATS

Lea County—Oil Discovery: Maljamar O&G Corp.'s Chesman 2, 660 ft snl and 675 ft wel 22-18s-32e, elev 3776 ft, red sand 3880 ft, San Andres 4260 ft, pump 75 bbls, shot 90 qts 4771-90 ft and 180 qts 4630-76 ft, td 4840 ft, pb to 4795 ft.

Lea County—Failure: Culbertson & Irwin's State 1, c sw ne 17-21s-33e, elev 3793 ft, salt 2090-3535 ft, abnd 3754 ft.

Rio Arriba County—Failure: Phillips-Helmerich & Payne's El Vado 1, nw ne sw 2-27n-2e, abnd, granite, 2009 ft.

OKLAHOMA

Bryan County — Cumberland: Pure's Little 106 10, se ne sw¼ 27-5s-7e, sand 5886 ft, flow 656 bbls, 5999 ft.

Creek County—Stroud: D. Sneed's Hood 1-A, c nw nw 7-14n-7e, abnd 1820 ft.

Creek County—Hickory Grove: Devonian's N. Lowe 1, c nw sw 11-14n-7e, shot 30 qts, pump 25 bbls oil, 25 water, 3162 ft.

Creek County—Walker: Marion Dev.'s Harjoche 2, nw ne ne 21-17n-9e, swab & flow 25 bbls, 2954 ft.

Creek County—Bowden: Sooner O & G's Collins 1, c se se 8-18n-12e, abnd 1640 ft.

Creek County—Manford District: L. B. Jackson's King 1-A, sw se sw 19-19n-9e, Bartlesville 2581 ft, abnd 2601 ft.

Garvin County—Pauls Valley: M. G. Cox's 1, se se nw¼ 25-4n-1w, 2nd Bromide, flow 2779 bbls, 4075 ft.

Kay County—Blackwell: Phillips' Cather 1, sw se ne 24-27n-2w, Arbuckle 4250 ft, abnd 4331 ft.

Lincoln County — N. McLoud: Magnolia's Herald 1, c nw nw 15-12n-2e, Wx 5616 ft, flow 137 bbls, 5621 ft.

Logan County—Guthrie Townsite: Sunray et al's Herzel 1, c nw ne 7-16n-2w, Miss 5397 ft, abnd 5878 ft.

Okfuskee County—Rusk: Phillips' Deewester 1, ne ne nw 18-11n-8e, Cromwell 3618 ft, abnd 3651 ft.

Payne County—N. March: Fidelity Royalty Co.'s Goss 1, se sw sw 7-18n-5e, Cleveland 2838 ft, abnd 2907 ft.

Pottawatomie County—NW. Earlsboro: Phillips' Karger 1, near c sw nw 1-9n-4e, 3000 gal acid, pump 101 bbls oil, 70 water, 4330 ft.

Seminole County—Hazel District: Wood's Haning 1, sw sw nw 23-7n-53, Wilcox 4179 ft, abnd 4189 ft.

Seminole County—Searight: Sinclair Prairie's Varnum 1, nw nw se 5-9n-6e, abnd 4177 ft.

Seminole County—Earlsboro: Great Lakes Carbon Co.'s Norton 1, sw se nw 36-10n-5e, Wilcox 4363 ft, abnd 4373 ft.

Shell's Buck 1-A, nw ne nw 21-10n-7e, 1,750,000 gas, 4600 ft.

Stephens County—Velma: Gulf's Quinn 1, ne se ne¼ 26-1s-5w, shot 60 qts, pump 125 bbls, 2676 ft.

Stephens County—West Loco: Jackson Bros.' Dilley A-5, se sw se¼ 6-3s-5w, flow 100 bbls, 1182 ft.

H. J. Brown & Lance's Lowrey 1, sw sw nw¼ 8-3s-5w, 2000 gal acid, pump 40 bbls, 1125 ft.

J. E. Jackson's Massey B-2, se nw nw¼ 8-3s-5w, 1500 gal acid, pump 15 bbls, 1170 ft.

OKLAHOMA WELLS DEEPENED

Logan County—Crescent: Sinclair Prairie's Short 3, sw ne ne¼ 27-17n-4w, otd 4983 ft, swab 2 bbls oil, 50 water, abnd 5278 ft.

Osage County — South Burbank: Phillips' McKinley 1, sw sw sw 35-26n-6e, sand 2759 ft, shot 160 qts, 3,000,000 gas, 2382 ft.

Pontotoc County—Roper: Lake & Skelly's Delaney 1, cen sw se¼ 22-5n-5e, otd 2623 ft, Viola 2517 ft, pump 15 bbls oil, 35 water, 2735 ft.

OKLAHOMA WILDCATS

Bryan County—Failure: Bert Fields et al's Wilson 1, c ne nw 13-5s-12e, cherty lime 1135-1200 ft, abnd 1200 ft.

Comanche County—Failure: Northern Ordnance's Stephens A-1, nw nw ne 22-3n-10w, abnd 1530 ft.

Hughes County — Gas Discovery: Otto H. Grimes' Sevier 1, se se se 8-8n-11e, shot 20 qts, 413,000 gas, 2999 ft.

Lincoln County — Failure: J. E. Crosbie's Quinlan 1, sw ne sw 26-12n-3e, Second Wilcox 5606 ft, abnd 5613 ft.

S. B. Logan's Barry 1, ne se nw 4-13n-4e, abnd.

Paul R. Smith's Peck 1, nw nw sw 5-16n-3e, abnd 4358 ft.

Logan County—Failure: Eason Oil Co.'s Cather 1, ne nw nw 15-16n-2w, Viola 5530 ft, Second Wilcox 5796 ft, abnd 5817 ft.

Noble County — Discovery: T. N. Berry's Wood 1, ne sw nw 1-20n-1w, Hoover 2225 ft, Perry 3501 ft, 8 bbls, 3494-96 ft.

Okfuskee County—Failure: Amerada's Palmer 1, ne se nw 34-11n-10e, Second Wilcox 4104 ft, abnd 4152 ft.

Pottawatomie County—Oil Discovery: Atlantic's Chilcoat 1, se nw se 10-9n-4e, 1000 gal acid, perf 4600 ft, flow 75 bbls.

Pottawatomie County—Failure: Stanolind's Hood 1, nw nw nw 9-11n-2e, Second Wilcox 6008 ft, abnd 6034 ft.

Stephens County—Failure: T. H. McCasland's Gentry 1, sw ne ne 24-1n-6w, abnd 2521 ft.

NORTH TEXAS

Clay County: Bridwell Oil Co.'s Harrison-Allen 2, 1292 ft from sw and 1050 ft from se lines J. Duncan sur, A 111, abnd 1240 ft.

Bridwell Oil Co.'s Harrison-Allen 3, 5340 ft from se and 200 ft from sw lines J. Duncan sur, A 111, pump 46 bbls, sand 1136-42 ft, td 1149 ft.

Montague County: Lesh & McCall's Reed 3, 603 ft snl and 1263 ft wel of s-124 ac T. J. Robinson sur, abnd in granite 2739 ft.

Throckmorton County: T. R. Putman et al's Putman 7, 600 ft nsl and 1555 ft wel blk 10, C.I.R. sur, abnd 666 ft.

Wichita County: Paradise Oil Co.'s Waggoner Est. 2-E, 650 ft e and 250 ft n of nwc GC&SF 1, but in TC, A 632, flow 160 bbls, ¼-in, 2024-42 ft, td 2055 ft.

Wilbarger County: Christie Bros.' McCrary 5, 2250 ft nsl and 2520 ft wel H&TC 64, blk 14, pump 50 bbls, sand 1481-96 ft.

Young County: W. H. Rogers, Jr., tr's Allar Co. 1, 466 ft n and e of m/s/sw corner of TE&L 2410, fraction A, Bend 3628 ft, abnd 4595 ft.

W. E. Production Co.'s Caswell 1, 467 ft out nec w½ TE&L 624, Bend 3918 ft, abnd 4939 ft.

NORTH TEXAS WILDCATS

Clay County—Failure: Tom B. Owens et al's Blakely 1, 660 ft out nwc sec 79, Freestone CSL sur, Marble Falls 6090 ft, Ellenburger 6844 ft, abnd 6950 ft.

Cooke County—Failure: T. L. Wheeler et al's Vogel 1, 330 ft from nw and ne lines 170.8-ac tr, T. H. Conley sur, A 1191, abnd 2005 ft.

Foard County—Failure: Texas Co.'s Nichols 1, 3456 ft snl and 660 ft wel H&TC 298, blk A, abnd 5790 ft.

TEXAS PANHANDLE

Gray County: Stanolind's Lovett 3-B, nw nw nw H&GN 36, blk B-2, pump 121 bbls oil, 34 water, shot 325 qts 2930-92 ft.

Hutchinson County: Continental's Sanford 6-D, 2299 ft nsl and 330 ft ewl n½ H&TC 76, blk 46, pump 111 bbls, 2786-97 ft.

WEST CENTRAL TEXAS

Brown County: Central Texas Gas Co.'s Fee 1, 660 ft snl and 840 ft wel subdiv 4, W. K. Dalton sur, abnd 1940 ft.

Jones County—Wimberly: Clark-Cowden Dr. Corp's Wimberly 3, 460 ft out swc blk 106, DeWitt CSL, leag 126, flow 834 bbls, ¾-in.

E. L. Wilson et al's Mashburn 4, 465 ft snl and 839 ft wel blk 86, DeWitt CSL, dual completion, elev 1751 ft, flow 528 bbls, ¼-in, acid 3000 gals, perf 2345-75 ft; flow 696 bbls, ¼-in, acid 1000 gals perf 2415-40 and 2475-95 ft, td 2225 ft.

WEST CENTRAL TEXAS WILDCATS

Jones County—Failure: John H. Edwards-Louis F. Green's Green-Jones 1, 1000 ft wel and 825 ft nsl lot 3, blk 10, Catherine Allan sur, abnd 1860 ft.

WEST TEXAS

Andrews County—Embar-Ellenburger: Phillips' University-Andrews 43, c sw nw sec 30, blk 10, flow 1428 bbls, ½-in, acid 500 gals, Ellenburger 7964-8014 ft, td 8064 ft.

Cochran County—Slaughter: Honolulu-Saltmount Oil Co.'s Blake 1-B-13, 510 ft out nec lab 13, leag 54, Oldham CSL, flow 498 bbls, 2-in, acid 10,000 gals 5078-94 ft, td 5103 ft, pb to 5094 ft.

Crane County—Sand Hills: Lario O&G Co.'s Tubb-Humble 2, 1760 ft nsl and 660 ft wel PSL 5, blk B-32, flow 389 bbls, 20/64-in, acid 5500 gals 4280-4632 ft, td 5010 ft, pb to 4632 ft.

Ector County—Foster: Kewanee Oil Co.'s Moss 1, c nw nw T&P 6, blk 42, T-3-S, pump 91 bbls oil, 8 water, shot 600 qts 4430-4595 ft, td 4631 ft.

Stanolind's Cowden 43-B, 660 ft nsl and 1830 ft wel T&P 15, blk 43, T-2-S, pump 145 bbls, shot 743 qts 4005-4252 ft, td 4299 ft.

Ector County—North Cowden: Stanolind-Magnolia's Holt 1-G, 1983 ft snl and 2024 ft ewl T&P 18, blk 43, T-1-n, pump 233 bbls, shot 990 qts 4435-4765 ft.

Texas Co.'s Holt 26, c nw se T&P 10, blk 43, T-1-S, flow 554 bbls, 2-in, shot 380 qts 4500-4695 ft, td 4705 ft.

Hockley County—Slaughter: Humble's Coons 9, 2550 ft snl and 2020 ft ewl PSL 11, blk X, flow 1192 bbls, cas, acid 10,000 gals 5208-24 ft.

T. F. Morrow et al's Mallet 37, 580 ft out swc lab 10, leag 48, Edwards CSL, flow 886 bbls, cas, acid 6000 gals 4890-4935 ft.

T. F. Morrow et al's Mallet 38, 580 ft out sec lab 10, leag 48, Edwards CSL, flow 546 bbls, cas, acid 10,000 gals 4880-4925 ft.

T. F. Morrow et al's Mallet 42, 580 ft out sec lab 9, leag 48, Edwards CSL, flow 436 bbls, cas, acid 12,000 gals 4905-47 ft.

T. F. Morrow et al's Mallet 45, 580 ft out swc lab 8, leag 48, Edwards CSL, flow 863 bbls, cas, acid 12,000 gals 4919-70 ft.

T. F. Morrow et al's Mallet 46, 580 ft out sec lab 8, leag 48, Edwards CSL, flow 707 bbls, cas, acid 10,000 gals 4905-52 ft.

Texas Co.'s Slaughter 143, 580 ft out nec lab 70, leag 38, Zavalla CSL, flow 1102 bbls, cas, acid 12,000 gals 4910-5016 ft.

Reagan County—Big Lake: Big Lake Oil Co.'s University 23-C, 1298 ft nsl and 2326 ft ewl sec 24, blk 9, abnd 4490 ft.

Yoakum County—Wasson: Anderson-Prichard's Willard-Nelson 1-A, 2090 ft nsl and 760 ft wel sec 805, San Andres 4620 ft, flow 216 bbls, 1-in, shot 1150 qts 5000-5130 ft, td 5140 ft.

Plymouth Oil Co.'s Waples-Platter 1, 660 ft nsl and 510 ft ewl sec 615, flow 287 bbls 2-in, acid 3000 gals 5210-85 ft.

WEST TEXAS WELL DEEPENED

Upton County—McCamey: Humble's Ricker 6-B, sec 6, blk R, E. C. Grooms sur, otd 2645 ft, pump 7 bbls, plus 8% water, td 2727 ft.

WEST TEXAS WILDCATS

Andrews County—Oil Discovery: Union Oil Co.'s Biles 1, c nw ne PSL 19, blk A-31, elev 3381 ft, salt 1690-2760 ft, Yates 2820 ft, San Andres 4360 ft, San Angelo 5520 ft, Clear Fork 5980 ft, flow 460 bbls, 41.7-gr, gas-oil ratio 262/1, 40/64-in choke, acid 12,000 gals, perf 7431-41 ft and 7259-7431 ft, td 7457 ft, pb to 7446 ft.

Hockley County—Failure: Woodley Pet. Co.'s Howard-Stanolind 1, c ne ne sec 65, blk A, R. M. Thompson sur, elev 3425 ft, San Andres 3650 ft, San Angelo 5030 ft, abnd 6204 ft.

TEXAS GULF COAST

Brazoria County — Old Ocean: Magnolia's Richardson-Wooley 1, Berry & Williams sur, dual comp, upper sand topped 10,050 ft, flow 428.49 bbls, ¼-in, cp 1000 lbs, gor 705-1; lower sand topped 10,870 ft, flow 445.57 bbls, ¼-in, tp 3100 lbs, gor 3460-1.

Tide Water's Mueller 1, M. B. Nuckols sur, 8⅝-in, 7066 ft, abnd 11,000 ft.

Chambers County — Anahuac: Humble's Johnson 38, H&TC 47, 9⅝-in, 1023 ft, abnd 7375 ft.

Hardin County—Sour Lake: E. C. Hankamer

et al's Sun 1, Stephen Jackson sur, orig comp 6-15-43, 25 bbls pump, re-comp, td 2891 ft, sand 1944 ft, pump 38 bbls.

Jefferson County—Lovell Lake: Humble's Broussard 38, C. Hillebrandt sur, 5½-in 7768 ft, sand 7767 ft, flow 106.95 bbls, ⅛-in, gor 704-1, td 7785 ft.

Gulf's Whelan-Hudek 1, L. Lopez sur, A 37, dual comp. Lower sand 7826 ft, flow 433.05 bbls, 3/16-in, cp 1259 lbs, gor 614-1; upper sand, 7505 ft, flow 350.50 bbls, 3/16-in, tp 1050 lbs, gor 565-1.

Waller County—Katy: Humble's Rice Milling Co. 2-D, H&TC 81, dual completion; 20 bbls hr, 2,300,000 ft gas, tp 1000 lbs, 6849 ft; 5½-in 3728 ft, 1,125,000 ft gas, 25 bbls cond, ⅛-in, tp 860 lbs, td 7340 ft.

SOUTH CENTRAL TEXAS WILDCATS

Burleson County—Failure: Bukowski's Cade 1, 5 mi sw Caldwell, temp abnd 3696 ft.

Caldwell County—Dale: Ogden's Moore 8, Swearingen sur, Austin 2363 ft, base chalk 2503 ft, Buda lime 2517 ft, Del Rio 2564 ft, Georgetown 2619 ft, Edwards 2702 ft, abnd 2706 ft.

Williamson County: Richardson Sorenson 1, 3 mi ne Round Rock, Eaglef, 60 ft Buda 115 ft, Del Rio 130 ft, abnd 1000 ft.

LOWER TEXAS COAST

Atascosa County—Imogene: Humble's Coward 2, Rogue Mauricio sur 604, Edwards lime 7596 ft, 5½-in 7644 ft, perf 7641-44 ft, flow 106 bbls, ½-in, tp 500 lbs, cp 1350 lbs, gor 22,800-1, td 7650 ft.

Bee County—South Caesar: Atlantic's Slick 2, E. Stapp sur, Ab 293, sand 6601 ft, perf 6604-08 ft, flow 96.8 bbls, 7/64-in, td 6616 ft.

Jackson County—Collier: Texas Co.'s Bolling-Collier Unit 3, Jas. Kerr sur, 8⅝-in 725 ft, abnd 3110 ft.

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By PHILIP B. KING

Geologist, Geological Survey, United States Department of the Interior, Washington, D. C.

PUBLISHED BY PERMISSION OF THE DIRECTOR OF THE GEOLOGICAL SURVEY AND OF THE SECRETARY OF THE GEOLOGICAL SOCIETY OF AMERICA.

REPRINTED FROM THE BULLETIN OF THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, VOLUME 26, NUMBER 4 (APRIL, 1942)

FOREWORD BY RONALD K. DeFORD AND E. RUSSELL LLOYD

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Chapter One—Introduction
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Jackson County—Maubro: Humble's Drushel 9, Benj. J. White sur, sand 5207 ft, flow 66.25 bbls, ⅛-in, gor 243-1, tp 300 lbs, cp 850 lbs, td 5233 ft.

Jim Wells County—Seeligson: Richardson et al's Breen-Horsting 1, Richard Ross sur, sand 4890 and 5926 ft, 5½-in 6166 ft, dual completion Zone 13, perf 4897-4903 ft, flow 122 bbls; Zone 19, perf 5932-38 ft and 5954-60 ft, flow 165 bbls.

Transwestern Oil Co.'s Hewitt 1, Richard Ross sur, dual comp. 5½-in, 6250 ft, perf Zone 13, 4875-80 ft, flow 34.5 bbls, ¼-in, Zone 19, perf 5985-90 ft, flow 107 bbls, 3/32-in.

Karnes County—North Porter: Phillips' Porter 1, Victor Blanco grant, Pettus, 3939 ft, perf 3945-57 ft, flow 162.25 bbls, 11/64-in, gor 574-1, tp 520 lbs, cp 905 lbs, td 4004 ft.

Nueces County—Agua Dulce: Gulf Plains Corp.'s Elliff 8, Antonio Longoria grant, dual comp, 4807 ft and 6295 ft, td 7010 ft, 7-in, 6670 ft, Comstock perf 4807-30 ft, and 4840-55 ft, 120,000,000 gas; Bertram 6295 ft, perf 6295-6310 ft, 7,250,000 ft.

Mid-Continent's Martindale 3, Paso Ancho de Abajo grant, 5½-in, 6665 ft, td 6665 ft, Bertram, perf 6532-44 ft, 83 bbls, 7/64-in; Sellers, perf 6598-6619 ft, 75 bbls, 6/64-in.

SOUTHWEST TEXAS

Duval County—Cadena: Taylor Refining Co.'s Parr 3-A, BS&F sur, abnd 5372 ft.

Jim Hogg County—Yaeger: Massingill et al's Royal 3, H&GN 29, 5½-in 3741 ft, sand 3741-51 ft, flow 91 bbls, ¾-in, tp 375 lbs, cp 400 lbs, gor 900-1, td 3760 ft.

Starr County—Barbacoas: Ordovician's Starr Cattle Co 1, J. J. De La Garza Porc 89, temp abnd 5490 ft.

Sun's Juarez 1, North Sun area, 5¾-in, 4527 ft, flow 156 bbls, 9/64-in, gor 905-1, tp 800 lbs, cp 1050 lbs, td 4541 ft.

Sun's Marrs McLean 4, Lockhart area, J. A. De La Garza Falcon Porcion 80, 5¾-in, 3967 ft, perf 3756-70 ft, gas-lift, 55.2 bbls, td 3967 ft.

Webb County—McLean: Killam's Marrs McLean 5, sur 610, abnd 3263 ft.

Zapata County: Government Wells Oil Co.'s Martinez 1, 5 mi sw Mirando Valley field, 4 mi nw Cuellar field, abnd 2337 ft.

Texas Co.'s Bert Hartman 3, Samuel Hamilton Survey 292, 3½ mi sw Colorado field, 5 mi w Guerra, abnd 2343 ft.

LOWER TEXAS COAST WILDCATS

Bee County—Failure: R. P. Brewer's Baird 1, H&GN 8, 3 mi se Clareville and 10 mi s-sw Beeville, abnd 4506 ft.

Rowe & DeLange's Mattingly 1, 4 mi nw Skidmore, 2¼ mi ne Tynan field discovery, abnd 4855 ft.

Jackson County—North LaWard—Failure: Hewit & Dougherty's Traylor 1, W. M. Munson sur, 2 mi nw N. LaWard field, abnd 6527 ft.

Jim Hogg County—Failure: Sun's Sarita 1-C, 16 mi sw Hebbronville, abnd 3894 ft.

Jim Hogg County—Oil Discovery: Sun's Well 6, 15 mi s Hebbronville, Well area, 5½-in, 5065 ft, sand 5061 ft, perf 5062½-63½ ft, flow 207 bbls, 3/16-in, tp 535 lbs, cp 1425 lbs, gor 950-1.

Lee County—Failure: Bode's Hill 1, 5 mi e Giddings, Carrizo 2077 ft, abnd 2453 ft.

Live Oak County—Failure: Smith & Story's Booth 1, ½ mi ne Mt. Lucas gas field, se cor county, abnd 4168 ft.

EAST TEXAS

Houston County—Crapeland: Lone Star Producing Co.'s Story 1, 2885 ft nsl and 750 ft from nw lines C. C. Marsh sur, elev 447 ft, Austin chalk 5600-5912 ft, Woodbine 6013 ft, abnd 6065 ft.

Hunt County—Campbell: Stanolind's Caston 1, 330 ft wel and 635 ft nsl of 77.43-ac lse, Chas. C. Dale sur, elev 611 ft, Pecan 1332 ft, Austin 2475-2939 ft, Woodbine 3568 ft, Georgetown 4230 ft, cut fault 4510 ft, Paluxy 4513 ft, abnd 4800 ft.

Wood County—Manziel: Shell's Bailey 1, 2050 ft snl and 2375 ft wel Samuel Burch sur, elev 445 ft, Georgetown 5043 ft, base Goodland 6225 ft, Paluxy series 6256 ft, flow 178 bbls 32½-gr, ¼-in, perf 6266-84 and 6288-98 ft, td 6327 ft.

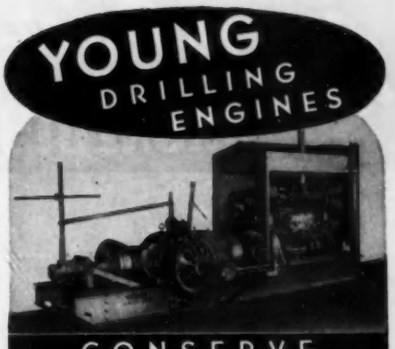
Wood County—Quitman: Shell's Goldsmith 6, 473 ft ewl and 3344 ft snl W. W. Lanier sur, elev 439 ft, Georgetown 5017 ft, Goodland 6228-6270 ft, Paluxy 6302 ft, abnd 6705 ft.

EAST TEXAS WILDCATS

Bowie County—Failure: Permac O&G Co.'s Tidwell 1, 3500 ft wel and 7300 ft nsl J. W. Weaver sur, elev 303 ft, Nacatoch 1073 ft, base Annona 2263 ft, Georgetown 3430 ft, Goodland 4050-4100 ft, Paluxy 4103 ft, abnd 4225 ft.

Freestone County—Failure: R. L. Wheelock et al's Hill 1, 1980 ft nsl and 4400 ft ewl Hugh S. Shepherd sur, Pecan 2563 ft, Austin 3438-3809 ft, Woodbine 4133 ft, sand 4181 ft, abnd 4500 ft.

Hopkins County—Failure: L. A. Grelling et al's Blalock 1, 2250 ft ewl and 1820 ft nsl J. G. Procello sur, elev 520 ft, Pecan 2370-2930 ft, Austin 3875-4020 ft, Woodbine 4708 ft, Georgetown 5292 ft, Goodland 6253 ft, Paluxy 6323 ft, abnd 6381 ft.



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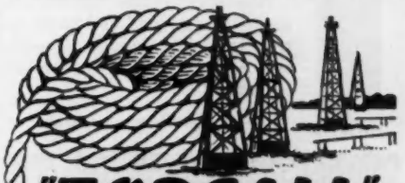

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CALIFORNIA

Fresno County: Shell's San Joaquin 1-1 ne sw 10-15-17 Raisin City area, rig.

Glenn County: Superior's Glenn Comm 3, 72-20, 31-21-1, Chico area, lcn.

Kern County: Union's Ellis 8-11, sw sw sw 11-27-21, Lost Hills area, spud.

Standard's 113-7, se ne se 7-30-22, McKittrick area, lcn.

Standard's 22-35, se nw nw 35-30-22, McKittrick area, lcn.

Butler Bros. Oil Co.'s Butler 1, nw nw nw 14-27-27, Poso Creek area, lcn.

Santa Barbara County: Union's Sisquoc Corehole 3, 28-9-31, Tinaquaic area, lcn.

ILLINOIS

Edwards County: First Nat'l. Pet. Trust's H. W. Brown 1, s/2 sw sw 6-2s-11e, lcn.

Richland County: Ashland's Friedly-Provines 3, s½ se ne 4-2n-14w, lcn.

Sohio's Bulmer 1, ne nw sw 6-3n-14w, lcn.

Sohio's Heap 1, sw sw sw 19-3n-11e, lcn.

St. Clair County: Eason Oil Co. et al's Engle 1, se se nw 29-1n-6w, dr.

INDIANA

Gibson County: Ohio's Lucas 1, nw ne ne 19-2s-11w, lcn.

Laporte County: Kingwood's Beyers 1, sw sw nw 35-6n-5e, lcn.

KANSAS

Barton County: Phillips' Barade 1, sec nw 29-16s-1e, lcn.

Helmerich & Payne and Phillips' Piller 1, nec 32-19s-15w, lcn.

Ellis County: Cities Service's DeHoff 3, nwc sw 30-11s-16w, dr 410 ft.

Coralena's Foster 1, ne nw sw 1-15s-16s, dr 688 ft.

Greenwood County: K. T. Weideman's Edgar B-1, nw sw ne 2-28s-8e, mim.

Norton County: R. W. Shields and L. H. Stein's Hicks 1, c sw ne 2-3s-25w, dr 1100 ft.

Rice County: Phillips' Valk 1, nec sw 27-18s-9w, mirt.

Stafford County: Great Lakes Carbon Corp. and Atlantic's Eldred 1, ne sw sw 8-24s-15w, lcn.

Magnolia's Gates 3, c ne nw 35-25s-13w, cellar.

Sumner County: Phillips' Essie 1, nec sw 27-33s-3w, lcn.

KENTUCKY

Christian County: Putnam & Hobsen's Birkholder 1, 25-G-26, dr.

Ohio County: J. Anton and Holeman's Hardley 1, 24-M-32, dr.

Rowan County: Gulf's Pickin 1, c sl ne nw 21-T-74, dr.

MICHIGAN

Clinton County: C. W. Teater's Holbrook 1, n½ nw se 36-8n-2w, rig.

Midland County: Sun Oil Co.'s Zuchowski 1, s½ sw se 21-15n-2e, lcn.

Mecosta County: Chapman Oil Co.'s State 1, e½ se se 29-16n-9w, dr.

NORTH LOUISIANA

Tensas Parish: Union Producing Co.'s Penrod Jurden 1, ne 19-11n-10e, lcn.

West Carroll Parish: Placid Oil Co.'s McIntosh 1, se 22-22n-10e, lcn.

Catahoula Parish: Jim McMurray's Marks 1, 11-9n-8e, lcn.

Bienville Parish: Mid-Continent's Jordan 1, se sw 30-16n-5w, rig.

Bossier Parish: A. B. Maynard's Thigpen-Herold 1, ne 15-20n-13w, dr.

Beene and Earhardt's Fenet 2, se sw 24-21n-21w, sd.

H. E. Rondeau's Murray 1, se se 22-19n-11w, lcn, Travis Peak test of shallow Bellevue field.

NEW MEXICO

DeBaca County: Frank Trumbull et al's State 1, c nw sw 26-1s-26e, Glorietta lime test, machine.

Lea County: El Paso Natural Gas Co.'s Ginsberg 1, 560 ft ewl and 1980 ft snl 7-25s-38e, lcn Ellenburger test.

B. H. Nolen et al's Seth Alston 1, c sw sw 17-13s-35e, mim.

OKLAHOMA

Comanche County: Northern Ordnance's Stephens C-1, se nw ne 28-3n-10w, rur.

Noble County: Deep-Rock's Hayton 1, ne ne nw 29-24n-2e, wo tools, 213 ft.

Pawnee County: Big Chief's Wichita 1, nw sw 33-21n-6e, dr 2425 ft.

Payne County: W. H. Elson, Sohio's McCarty 1, ne ne sw 7-17n-2e, dr 2671 ft.

Stephens County: T. H. McCasland's Eggleston 1, nw nw ne 30-1n-5w, mi.

TEXAS GULF COAST

Fayette County: Continental's Adamick 1, Thomas Thompson Lge, 4 mi ne Cistern, lcn 4500-ft test.

Galveston County: Stanolind's First Nat'l Bank of Galveston 1, Lemuel Crawford sur, ½ mi ne Alta Loma production, lcn.

Harris County: Cities Service's Sharman 1, 10 mi nw Houston, W. H. Mowery sur, sw Bammel field, lcn 8000-ft test.

Jefferson County: Rowan Drlg. Co.'s Broussard 1, Stephen Eaton sur, 4 mi ne Fannette, lcn.

Polk County: Humble's Carter 3-B, Andres

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for the easiest brake known. It "feeds off" evenly. Standco never scores brake rims. See page 2257 Composite Catalog.

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Analysis of oil field brines, cores, gas, oil and minerals. Field gas testing. R. H. Fash, Vice President; Long Distance 138. 823½ Monroe Street, Fort Worth, Texas

HOUSTON LABORATORIES
Analytical and Consulting Chemist
Podbielniak Gas Analysis
Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils
Long Distance 267, Box 132, Houston Tex.

Morales, Segno area, deep nw flank test, lcn 10,500-ft Wilcox test.

Wharton County: Salt Dome Oil Corp.'s Menefee 1, 5½ mi nw Louise, S. P. Middleton sur, A 269, lcn 5500-ft test.

Sinclair Prairie's Taylor 1, North side Boling Dome, S. F. Austin 3-1/6 lge, 3 mi n Boling, lcn 3500-ft test.

LOWER GULF COAST

Jim Wells County: Smith & Story's Perez 1, La Tinaja de Lara grant, 4 mi n Alice, lcn 3000-ft test.

Texas Co.'s de Tijerina 2, Seeligson area, Andres Canales sur 270, A 76, lcn 7000-ft test.

SOUTHWEST TEXAS

Bee County: Dirks Bros.' Dugat Est. 2-B, J. Poitevent sur 1, A-256, 5 mi w Tuleta, 2 mi w Dirks field, lcn 7800-ft test.

Brooks County: Sun and Humble's Lasater 1, Gyp Hill area, HE&WT sur, 5 mi sse Falfurrias, lcn.

Starr County: Continental's Dallas 1, CCSD&RGNG 509, nne Rincon field, lcn 7500-ft test.

NORTH TEXAS

Clay County: Fortex Oil Corp.'s Turner 1, 600 ft snl and 850 ft ewl blk 55, Specht-McCutchen sur, lcn.

Hardeman County: Humble's Dodson 1, c se ne H&TC 49, blk 10, 3 mi nw Chillicothe, lcn 8500-ft test.

Jack County: Rathke Oil Co.'s H. H. Slusher 1, 1980 ft nsl and 660 ft wel J. M. Brown sur, A 59, lcn 4800-ft test.

Throckmorton County: Shell's Travis County School Lands 1, 10,730 ft ewl and 5850 ft nsl of Travis CSL sur, lcn 5400-ft test.

WEST TEXAS

Cochran County: Helmerich & Payne-Margay Oil Co.'s Slaughter 1, 660 ft out nec lab 1, leag 116, Potter CSL, lcn 5300-ft test.

Crane County: Atlantic's University 1-H, c sw nw sec 35, blk 31, lcn 3500-ft test.

Crockett County: Duquesne Oil Corp.'s Shannon 1, c nw nw E. L. Ry. 11, blk BB, lcn 2750-ft test.

Gaines County: Honolulu Oil Corp.'s E. B. Homann 1, c se se WT 96, blk G, lcn 5700-ft test.

WEST CENTRAL TEXAS

Comanche County: P. T. Fullwood et al's J. W. Morgan 1, 150 ft out swc e-80 and nw¼ ET 2, A-1050, lcn 800-ft test.

Jones County: Hunter & Hunter's Fields 1-B, 660 ft wel and 1830 ft snl of 563-ac tr, Samuel Andrews sur 191, rig for 5200-ft Ellenburger test.

Super Salesman

A book agent rang the front door bell, and smiled when a middle-aged lady appeared.

"May I see the lady of the house?"

"Well, yes, you can, unless your eyesight's bad," she snapped belligerently.

"Oh, beg pardon, madam! Are you the lady of the house?"

"Yes, I am. Whom did you take me for? Did you think I was the gentleman of the house, the next-door neighbor, or the cat, or the dumb waiter?"

"I didn't know, madam, but you might be the youngest daughter."

"Oh, did you? Well, that was natural, too," she replied with a smile. "What can I do for you, sir?"

Squeaks from the Bull Wheel

Hindu Politeness

Lord Minto, onetime Viceroy of India, said that nothing could surpass in delicacy the reply made to him by one of his servants.

"Well, what kind of sport has our distinguished guest had?" he asked the man, who had attended an American guest.

"Oh," replied the scrupulously polite Hindu, "the young sahib shot divinely, but Providence was merciful to the birds."

Experience

"Why don't you get out and hustle? Hard work never killed anybody," said the philosophic gentleman to whom Rastus applied for a loan.

"You is mistaken dar, boss," replied Rastus. "I'se lost fouh wives dat way."

It Worked

This is a story about a fellow in a war plant who wasn't overworking himself, and who was tipped off that a government inspector was making the rounds and might drop in to check up on things.

Next day this worker saw a new fellow in the plant. Sure enough, this new chap sat down nearby and started to watch him, so the war worker turned on a burst of speed.

The following day the same stranger was present, and the worker plugged away harder than ever. Unaccustomed to this unwonted exertion, however, he keeled over and the Red Cross gang scooped him up on the stretcher.

"Lissen, Bud," he said to the stranger, expecting government commendation for his hard work or perhaps some more tangible recognition, "who are you, anyway?"

"Me?" said the visitor, "I'm your new helper."

Now We Know

"What is the Mason-Dixon line?"

"It's the division between 'you all' and 'youse-guys'!"

Modern Technique

"Buy a subscription to the Ladies Home Journal, mister?"

"I suppose you're working your way through college?"

"No, just helping my mother through welding school."

Fame

The instructor of a course in cryptography was striving to explain an obscure point to his students. Finally he referred them to a particular textbook saying, "I hope some of you will read it. I consider it one of the finest books on cryptography. I only wish I could remember the name of the author."

A meek little private in the last row raised his hand, "I wrote it, sir," he told the teacher.

Prices

The display of fruit looked so tempting that the customer stood bewildered before the cleverly arranged counter.

"I'll take two pears, please," said the customer. Then, as the little bag was handed to him, he asked: "How much?"

"Forty cents," said the clerk.

The customer bore the shock bravely. He flashed two quarters. "Keep the change," he said coolly. "I took a grape while you weren't looking."

Be sure to check the . . .

TRADING POST SECTION

on page 132 of this issue

"USED EQUIPMENT FOR SALE"

"EQUIPMENT WANTED TO BUY"

"HELP WANTED"

"NOTICE OF PROPERTY FOR SALE"

and others that you may find of interest.

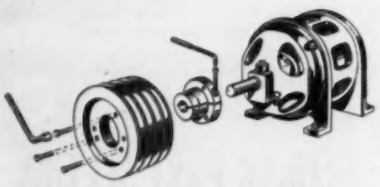
Gotkool
WATER CANS
& COOLERS
GOTT Water Coolers are the convenient way to keep drinking water handy to the worker, protect it from impurities. Their exclusive construction keeps water cool for long periods. Snug fitting large removable top, handy non leaking push button faucet. GOTT Water Cans for handy field use. Your Supply Store has them, get one today!
GOTT
WATER COOLER
GOTKOOL
WATER COOLER
Made in 2, 3, 5, 8, 10, 15 and 20 gallon sizes.
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

Notes for the Equipment Buyer and User

Quick-Detachable Sheave

PYOTT FOUNDRY & MACHINE COMPANY

Pyott Foundry & Machine Company, 328 North Sangamon Street, Chicago, has developed the Pyott quick-detachable sheaves for use with multiple V-belt drives. The outstanding feature of this assembly is the ease, speed and safety with which it can be attached or removed from the shaft.



Pyott Quick Detachable Sheave

A socket wrench is the only tool needed for either job. In attaching the sheave to the shaft, the first step is slipping the tapered split hub onto the shaft in line with the kewway. Then the headless cap screw is tightened down with an inserted key, clamping the hub firmly on the shaft and producing a virtual press fit, even on undersized or oversized shafts.

The next step is attachment of the sheave on the tapered hub. Actual tightening of the sheave on the hub is accomplished by inserting the pull-up bolts and tightening them evenly with a socket wrench. These bolts protrude through the sheave and engage with threaded holes in the hub to form an immovable union.

In removing the sheave from the hub, the first step is to unscrew the pull-up bolts. Next, two pull-up bolts are inserted in special tapped holes in the sheave and tightened down. As they emerge through the opposite side of the sheave the pull-up screws act as jack screws to force the sheave away from the hub. The entire force is exerted on the hub. As a result, no matter how often the process is repeated, the mounting and de-mounting of the sheave is always safe and easy with no danger of damaged shaft or battered motor bearings.

The sheaves are available in standardized sizes. Alignment of the sheave is easy for the user of machinery because the hub remains on the shaft permanently.

Extinguisher

THE GENERAL DETROIT CORPORATION

The General Detroit Corporation, 2200-2272 East Jefferson Avenue, Detroit 7, Michigan, has developed a fire extinguisher of the seat valve type.

Seat Valve Type Extinguisher

Discharge of this new extinguisher may be controlled at will by manipulating the wheel at the top of the cylinder. The unit is manufactured in a 4-pound and 15-pound size, and is a carbon dioxide extinguisher.

Gas Pumps

Roots - Connersville Blower Corporation, Connersville, Indiana, has published bulletin 31-B-15 covering positive displacement gas pumps. The bulletin contains many illustrations showing various types of driving arrangements which make the pumps readily adaptable to a wide range of applications.

Second Army-Navy Award to Macwhyte Company

Macwhyte Wire Rope Company, Kenosha, Wisconsin, has been awarded the second Army-Navy E flag with the addition of one white star in the red field, for continued and determined patriotism in production of war materials. This second award covers the time from November 21, 1942, the time of the first award, until August 21, 1943.

Cooper-Bessemer Gets Gold Star Award

Cooper-Bessemer Corporation, Mount Vernon, Ohio, and Grove City, Pennsylvania, has been awarded the first gold star to be added to the Maritime M for continued notable production of diesel engines, gas engines and engine-driven compressors for war purposes.

Metallizing Company Buys New Building

The Metallizing Company of America has purchased a building at 135 Cedar Street, New York, as eastern headquarters for its sales and service operations in that area. The building is a complete operating unit with development and test laboratories, warehouse for metallizing guns, equipment, parts and wire, general service departments, as well as a demonstration shop, complete with equipment included in a typical operating metallizing set-up. V. A. Cook will continue in charge of eastern operations.

The Metallizing Company of America maintains general offices at 1330 West Congress Street, Chicago. In addition, there are 22 engineering sales offices throughout the United States, Canada and Hawaii.

Tank Heater

The Griscom-Russell Company, 285 Madison Avenue, New York, has issued a new bulletin on the G-Fin storage tank heater. The bulletin explains the construction of the G-Fin elements, graphically shows the advantages of the heater design, and explains the different arrangements in which the heater is furnished, with complete tables of dimensions and ratings.

Safety Manual

B. F. McDonald Company, 1250-K, South Hope Street, Los Angeles 15, California, has published a new catalog of safety equipment, under the title of "McDonald Safety Manual." Included are sections on head protection, eye protection, respiratory protection, first aid, safety clothing, gas masks, safety instruments, and miscellaneous appli-

Arc-Welding Accessories

General Electric Company, Schenectady, New York, has published a new bulletin covering the company's complete line of arc-welding accessories for men and women operators. The bulletin describes all the standard as well as the many new arc-welding accessories now available.

CURTIN CENTRIFUGES

Give You Quick, Accurate Results
With Less Effort . . . at Less Cost

Simple in design, ruggedly built for heavy duty service. Gear ratio and throw of crank produce required speed with no strain. Heads and cranks of 100 CC and 15 CC machines are interchangeable. Meets A.S.T.M. Standard Method D-96 and A.P.I. Code No. 25 requirements. Ask for full details.

W·H·CURTIN & CO. Inc.
HOUSTON U·S·A TEXAS

Maintenance of recording instruments

Information supplied by "The Oil Weekly"

Recording instruments are just about as hard to get, or replace, as they are important. The following measures are suggested as a means of insuring their accuracy and longevity. They should be:

1. Sheltered from sun, rain, fumes, acids, heat and cold.

2. Mounted separately from the line as protection from jarring and pulsations.

3. Tied in to pipe line taps with copper or flexible tubing leads.

4. Serviced and repaired by experienced personnel. More units are wrecked by bungling amateur fixers than fail prematurely in service.

5. Lubricated sparingly with lubricant recommended by manufacturers. Heavy lubricants gum the works and upset calibrations.

6. Treated kindly. Doors should be "squeezed" shut —not slammed. Clogged pens should be washed or cleaned chemically, not dug out with a knife or nail.

7. If equipped with electrical alarms, use only pilot circuits to actuate controls. Mechanisms are too delicate to operate heavy switches.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.

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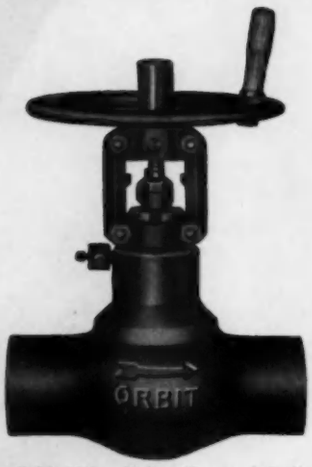
More than ever before you need valves that can "take it."

ORBIT VALVES



Orbit Wing Valve (Screwed End)

ORBIT WING VALVE

This valve is especially designed for Wing Service. Made in 2" size only in both flanged and screwed ends. Opening through valve is 1⅛". Seats of cast Stellite J Metal.

•

YOUR ORBIT VALVES

will last for the duration. Meanwhile, if you have any questions regarding their care or maintenance, write us.

•

OIL WELL IMPROVEMENTS CO.

SINCE 1912

TULSA, OKLAHOMA

Men in the Industry's News

H. F. BEARDMORE resigned as petroleum engineer for Amerada Petroleum Corporation September 1 to become chief engineer with Barnsdall Oil Company at Tulsa. He long has been active in petroleum engineering, specializing in pumping analysis in which department he aided in research for American Petroleum Institute. He also is active in the American Institute of Mining and Metallurgical Engineers, and is a past chairman of the chapter at Tulsa.

A. E. PIERCE has been promoted to general manager of production by Mid-Continent Petroleum Corporation, Tulsa. He has been in charge of Southern Oklahoma production.

FRED A. LICHTENHELD, district petroleum engineer for Cities Service Oil Company at Oklahoma City, has been elected second vice president of the Central Oklahoma chapter of API.

DON HYATT has resigned as geologist for The Carter Oil Company in the Seminole area of Oklahoma.

C. M. COPELAND and **O. D. WILLIAMS** have resigned from Helmerich & Payne, Inc., Tulsa, and are entering business as drilling contractors and as Universal Casing Pulling Company.

J. E. BUCKLEY, superintendent of the land department of Sun Oil Company at Tulsa, is being transferred to the Gulf Coast area.

CLYDE A. SWIGART has been appointed manager of the Pipe Line Department of Standard Oil Company of California, succeeding Stuart Moser, who retires after 33 years of service with the company.

Swigart joined the company's engineering department shortly after graduation from Stanford University. Later, in the pipe line department, he served in executive capacities in the Kern River and Kettleman-Estero Divisions. During the last five years, while general superintendent of the Central District pipe line department, he was also superintendent of the Bakersfield refinery.

C. D. Ball, now superintendent of the Central District pipe line department, becomes general superintendent September 1, and E. F. Hudson takes Ball's present position. Replacing Hudson as superintendent of the Southern District pipe line department will be L. E. Joses.

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